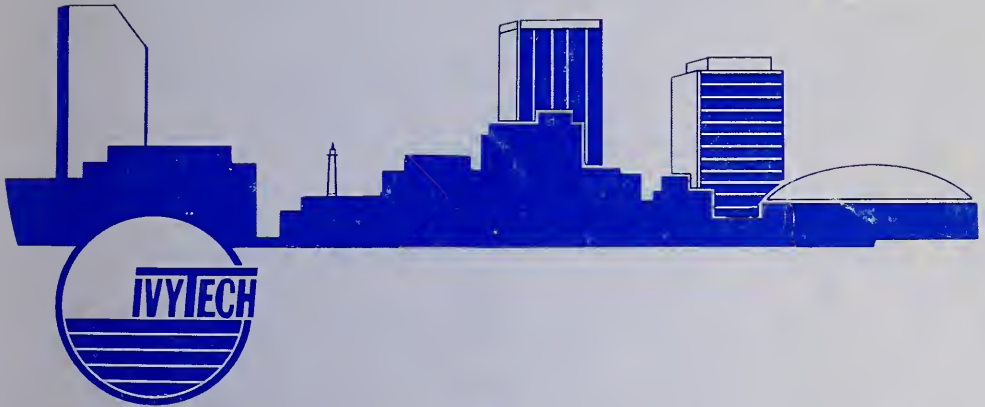


1983/84



Indiana Vocational  
Technical College



### **PBVE at Ivy Tech**

Ivy Tech, Indianapolis, has been recognized by the Department of Education for an exemplary project in Performance Based Vocational Education (PBVE), a system of developing programs, curricula, and courses by analyzing the tasks technicians perform on jobs in industry. In addition, the Indiana State Board of Vocational Technical Education has identified Ivy Tech, Indianapolis, as one of three model sites in the state of Indiana offering Performance Based Vocational Education.

Students at Ivy Tech will find programs and courses which provide hands-on training in specific job skills – marketable skills which enhance employability.


## **INDIANA VOCATIONAL TECHNICAL COLLEGE**

*East Washington Center:*

1315 East Washington Street  
Indianapolis, Indiana 46202  
635-6100

*North Meridian Center:*

One West 26th Street  
(northwest corner of Fall Creek Parkway and Meridian)  
Indianapolis, Indiana 46208  
929-4800



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Dr. Meredith Carter

## **VICE PRESIDENT/DEAN'S MESSAGE**

Welcome to Indiana Vocational Technical College - Central Indiana (Ivy Tech-Central Indiana)! In choosing Ivy Tech - Central Indiana, you have selected a college that is job-oriented. You can select your program of study from approximately thirty (30) specialized career programs, as well as from a diversity of courses. In a technological world where change occurs rapidly, we use every means at our command to keep our instructional programs current.

Each educational program is backed by an advisory committee made up of employers and employees, as well as educators, in the field. We rely on their advice in choosing instructional equipment and updating the curriculum. This effort is supported by a counseling and guidance system which involves instructors, counselors and other students. Our instructors are skilled and interested in the students' educational growth.

All of us at Ivy Tech are united in the common goal of meeting the needs of the individual student in a practical way.

Use this student handbook to look up what you need to know, but also make sure of the opportunities available to discuss your interests with our faculty and counselors.

We look forward to a long association with each of you: first as a student, and after your study at Ivy Tech as a functioning and valued member of society. It is also our hope that each student will return to Ivy Tech for further classes, or as a resource person and advisor.

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**COME GROW WITH IVY TECH!!!!!!**

## **INDIANA VOCATIONAL TECHNICAL COLLEGE**

### **HISTORY**

Indiana Vocational Technical College - Ivy Tech - was established in 1963 by the General Assembly of the state of Indiana. Its purpose: To fill the gap between technical education at the high school level and technologies taught at the university level and to provide vocational technical education in each of the state's thirteen economic regions.

Ivy Tech, Indianapolis - Region 8 - opened its doors in 1966 to serve residents of Indianapolis and Marion, Morgan, Hancock, Johnson, Shelby, Boone, Hendricks, and Hamilton Counties. In 1966, 367 students enrolled in 3 technical programs; in 1983, nearly 5,000 students enrolled in 29 technical programs fully accredited by the North Central Association of Colleges and Schools. Further, state leaders in government and business are looking to Ivy Tech more than ever before to provide the skilled technicians that will attract new industry to the state.

### **MISSION**

Ivy Tech strives to serve persons seeking career education at less than the four-year-degree level; to serve persons preparing for job-entry and careers in a variety of fields; to assist students in overcoming deficiencies and acquiring skills fundamental to career development; to provide a broad range of student services including counseling, career planning, placement, and financial assistance; to serve persons who need additional training for advancement in their present fields or retraining for employment in new fields; to provide educational programs to meet the needs

of employers in the eight-county area of Region 8; to serve persons who desire special classes and workshops to enhance their occupational competence; and to cooperate with community agencies in community development activities.

### **PHILOSOPHY**

All individuals, regardless of economic or social status, are entitled to be treated with dignity and respect and should be provided with opportunities to develop to their and society's ultimate benefit. Technical and related education is an essential part of an occupational curriculum to enable students to develop self-awareness and social responsibility to successfully compete in a chosen occupational field. Programming at Ivy Tech is directed toward serving the needs of all individuals within their community, as well as the needs of the community as a whole.

### **AFFILIATION**

Ivy Tech is a member of the Indiana Conference for Higher Education, the American Association of Community and Junior Colleges, the Indiana Association of College Admissions Counselors, the Indiana State Financial Aid Association, and the AAMVPA (American Association of Minority Veterans Program Administration). The College is approved for the education of veterans' spouses, widow/ers, children, and/or orphans of disabled or deceased veterans who are eligible for educational benefits. The College is also endorsed by the Rehabilitation Division of the State of Indiana.

## ADMINISTRATION

State-wide, Ivy Tech is governed by an 11-member Board of Trustees appointed by the Governor. Under terms of the legislature, the members represent various economic interests: manufacturing, commerce, labor, agriculture, and the public at large. This board appoints the President of the state-wide College.

In addition, Ivy Tech - Indianapolis has its own Board of Trustees. Appointed by the state board, the members keep the Central Indiana campus in touch with local needs - both of those seeking skills and of industry as well.

## IVY TECH - CENTRAL INDIANA BOARD OF TRUSTEES

Dale Baker, Assistant Principal, Ben Davis High School - Education

Charles I. Sheets - Agriculture

James E. Pauloski, Director of Public Relations, Indianapolis Newspapers, Inc. - Commerce

Moses W. Gray, Director of Community Relations, Detroit Diesel-Allison Division - Manufacturing

John Ober, President, Business Furniture Corp. - Commerce

Mrs. Shirley Woody - Agriculture

D. Edward Yates, Executive Chairman, Greater Marion County C.A.P. Council - Labor

Ivy Tech's own administration works with the Board of Trustees to ensure students quality vocational technical education:

Meredith L. Carter, Vice President, Dean

Jeff Moon, Associate Dean

Nancy Zeller, Director of Instruction

John Montgomery, Director of Institutional Services

Jim Kendrix, Director of Business Affairs

Rex Ward, Director of Industrial Training and Development

Walter Poling, Director of Student Services

## DEGREES AND TRAINING

### DEGREES

Ivy Tech provides a wide variety of credit courses and programs to full and part-time students, on and off campus. The academic year is divided into four full eleven-week quarters with breaks between quarters for counseling and registration. Many courses are offered every quarter; others are offered on an alternating-quarter basis. Students should check with program chairpersons to determine the appropriate sequence of courses in their programs.

THE ASSOCIATE IN APPLIED SCIENCE DEGREE is awarded to students who have completed a minimum of 90 credits in an approved program, who have satisfactorily completed all program course work, and who are high school graduates or the equivalent. Associate Degree programs are designed to prepare students for employment in an occupational field by giving students both depth and breadth in theory and hands-on training.

THE TECHNICAL CERTIFICATE is awarded to students who have completed between 45 and 90 quarter credits in an approved program and who have satisfactorily completed all program course work. Technical Certificate programs are designed to provide students with both theory and hands-on training required for specific job classifications.

OCCUPATIONAL CERTIFICATES and CERTIFICATES OF COMPLETION are awarded at the direction of division chairpersons for students who complete clusters of courses or special separate courses.

Ivy Tech's degree and certificate programs are offered through

three Divisions of the College - Business, Health, and Trade & Technical. In addition, the Related Education/Developmental Studies Department provides skills training in the areas of reading, writing, mathematics and science. The related education content of all programs is designed to enhance the student's ability in general citizenship and social responsibility in addition to complementing specific job requirements.

Currently, Ivy Tech offers 21 Associate Degree programs, 21 Technical Certificate programs, 8 Occupational Certificate programs, 1 Certificate of Completion program, 4 Skills Development programs, and 1 General Education Development (GED) program on campus. Complete descriptions of all degree programs and individual courses are included in this handbook.

### EXTENDED SERVICES

In response to the needs of Region 8 residents, Ivy Tech provides credit and non-credit training at a number of off-campus sites, such as hospitals, businesses, industries, high schools, agencies, and one instructional center in Lebanon. Currently, 32 regular credit courses are being offered in five area high schools, many through a dual enrollment arrangement between the high schools and Ivy Tech.

Through the Office of Industrial Training and Development, Ivy Tech also provides supervisory, secretarial, customer service, and management training through courses, seminars, and workshops for business and industry. In addition to regular credit courses, special training programs and business seminars unique to a company's needs are developed and presented by qualified Ivy Tech personnel. Employers seeking specific training



for their employees may request a training program tailored to their needs, or they may enroll their employees in Ivy Tech's regular courses or programs.

## TELECOURSES

Through an arrangement with Channel 20 and cable television, Ivy Tech offers students the chance to learn a subject **from their homes**, using the U.S. mail, their televisions, and the telephone.

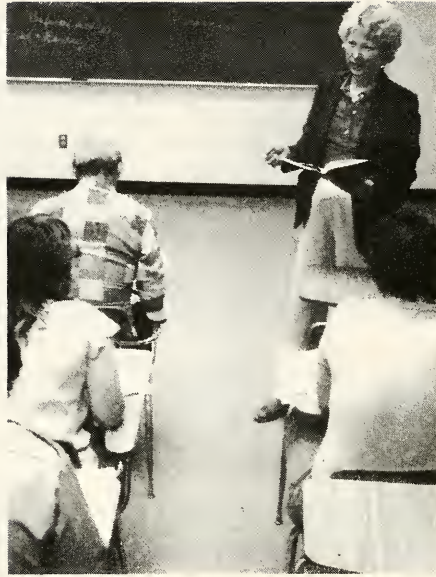
Ivy Tech's telecourses are much more than just watching a television broadcast. Telecourses include:

- professionally produced lectures broadcast on local television stations
- textbooks, study guides, assignments and quizzes, all sent and received by mail

- a telephone hotline to connect the student with an Ivy Tech instructor for questions, discussion, and follow-up
- monitoring of a student's progress by the Ivy Tech instructor
- a final exam to be taken at the College
- optional discussion or review sessions, tours, or other events appropriate to the course.

Current telecourses include THE BUSINESS OF MANAGEMENT, MAKING IT COUNT: AN INTRODUCTION TO COMPUTERS, PERSONAL FINANCE AND MONEY MANAGEMENT, and FLEXIBLE READING.

Dates and times of telecourses to be offered are announced in ample time for students to register and receive course materials.



## **IVY TECH is for YOU -**

- \*If you need more marketable skills
- \*If your skills need upgrading
- \*If you are looking for short term training

## **IVY TECH can help YOU!**

We can help you determine where you **can** go from here.

We can help you go from where you are now to where you want to be.

# **ADMISSIONS AND REGISTRATION**

## **ADMISSIONS**

Indiana Vocational Technical College admits anyone above the usual high school age, anyone who has permanently withdrawn from high school and who is more than 16 years of age. The "open door" policy provides admission for any resident of the State of Indiana regardless of race, color, creed, national origin, sex, or age. No person, otherwise qualified, will be barred from admission solely on the basis of handicap.

The College does reserve the right to guide the enrollment of students in a particular program or course on the basis of their prior academic records, vocational counseling, and testing.

## **REQUIREMENTS**

To be admitted to the College, students must be at least 16 years of age and meet one of the following criteria:

Be a high school graduate, or

Have successfully completed a high school equivalency examination (G.E.D.), or

Have demonstrated an interest in and need for post secondary occupational education as offered by the College.

To have full-time standing, students must have a complete application on file with the College, and when the selected program requires, a complete health examination form signed by a physician.

## **LIMITED ADMISSION AND ENROLLMENT**

The number of students admitted and enrolled in programs and/or courses may be limited by one or more of these factors: (1) College financial resources; (2) facilities, which include available lab equipment and related support; and (3) health program clinical slots. Most programs have prerequisites or entrance requirements based on skill levels and prior knowledge.

## SELF-ASSESSMENT

All students should attend a Self-Assessment Orientation session before being admitted into a program. Students wishing to use veterans' benefits **must** participate in the Self-Assessment Orientation session before being admitted in a chosen program. Students with previous college credits should submit an official college transcript which **may** be used in lieu of testing.

## INTERNATIONAL STUDENTS

Ivy Tech welcomes qualified students from other lands. International students must meet the general admissions requirements **and** provide proof of adequate financial support. It is estimated that the international student will need a minimum of \$8,500 per year for fees and living expenses while attending the College. The international student should send a letter from an appropriate sponsor, government official, or bank official showing that he/she has sufficient funds to cover the cost of the student's education while attending the College, and that these funds will be available to him/her in this country.

## SPECIAL NEEDS STUDENTS

Physically handicapped students are provided with elevator keys and special parking permits. Deaf students will find special programs and services to meet their educational, pre-vocational, and language needs. Students with learning disabilities will find courses which offer evaluation and continuous support throughout program level instruction.

## ENROLLMENT STATUS

Registration dates are publicized well in advance of each new quarter. The following designations are used to determine a student's enrollment status:

FULL-TIME STUDENT	12 or more credits per quarter
3/4 TIME	9-11 credits
1/2 TIME	6-8 credits
LESS THAN 1/2 TIME	1-5 credits

Late registration is permitted if classes are still open. The student will be charged a **late registration fee** of \$10.00.

## DROP/ADD

If it becomes necessary for students to change their schedules, they must obtain drop/add forms and submit them to Data Services. Program advisors or the counselors will discuss schedule changes with students and supply the necessary forms. Failure to attend classes does not lead to automatic withdrawal from a course and may jeopardize a student's grades.

## REFUND POLICY

If students choose to withdraw from a course or courses, they must notify the College in writing (i.e., the Drop/Add form).

The College will refund students' assessed fees on the following schedule:

REGISTRATION THROUGH THE FIRST WEEK	100% refund
SECOND WEEK	50% refund
THIRD WEEK	25% refund
AFTER THIRD WEEK	NO refund

If a course is cancelled by action of the College, students will receive a 100% refund of registration fees for that course.

## FINANCIAL AID

Three general types of financial aid are available: (1) scholarships and grants; (2) work/study; (3) loans arranged by the student with individual lending institutions. Other types of financial aid include: institutional awards; state scholarships and education grants; Child of Disabled Veteran; Police or Fireman Orphan; Railroad Orphan; Social Security; Vocational Rehabilitation; CETA and similar programs; private scholarships.

All financial aid information and forms are available in Room 214, Financial Aid Office.

## FEES

Ivy Tech's costs are among the lowest of any college in Indiana. Persons enrolled in Ivy Tech courses are charged a general fee per credit. In addition, charges are assessed as they apply to various courses, divisional fees, and certain College activities.

In the Spring Quarter of 1983, for example, a student attending full-time (taking 15 credit hours) would be charged approximately \$320. This cost will vary depending upon the program of study and does not include the cost of books, travel, or living expenses. Tuition and fees are subject to change by the Indiana Vocational Technical College State Board of Trustees.

## VETERANS INFORMATION

The Veterans Administration determines eligibility for **all** veterans. Eligible recipients of veterans' benefits are entitled to 1 and 1 months of educational assistance for every month of active duty after January 31, 1955, up to the maximum of 45 months. Educational benefits must be used prior to 10 years from release from active duty.

The amount of monthly educational allowance depends on the number of dependents and the training time. For Associate Degree students training time is based on the number of credits taken; for Certificate students, training time depends on the number of credits taken **and** the number of contact hours.

The Office of Veterans Affairs provides assistance with VA forms.

# GRADING SYSTEM

## GRADES AND STATUS

The Academic Grading System consists of grades and status: Grades reflect the student's quality of performance and achievement of competency upon completion of a course. Status is a condition describing why the student did not complete a course. Instructors determine and assign both grades and status after objectively appraising and evaluating students' performances. Students receive quarterly reports of their grades and status.

GRADES	INTERPRETATION	QUALITY POINTS PER CREDIT
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Unsatisfactory	0

STATUS	INTERPRETATION	NOT COMPUTED
IP	In Progress	
I	Incomplete	
W	Withdrawal	
AU	Audit	
S	Satisfactory	

**IP In-Progress:** This intermediate status is applicable only to courses that are entirely individualized or to courses open to special enrollment throughout a given quarter. The IP indicates that a student has not completed such a course and will continue course work into the next quarter. A student has 30 days, including weekends and holidays, to complete the IP. If not completed, the grade will change to an "F".

**I Incomplete:** This intermediate status is assigned only when students: (1) have not completed final examinations, or (2) have carried courses until near the end of the quarter and have made arrangements with instructors to complete the unfinished work. Students who do not make such arrangements will receive "Fs" for those courses or other appropriate grades as assigned by the instructors. Students have 30 days, including weekends and holidays, to complete the I. If not completed, the grade will change to an "F".

**W Withdrawal:** Withdrawal is a terminal status. Students can voluntarily withdraw from courses (following the end of the fee refund period) up to the end of the sixth week. Thereafter, the instructor's approval is required.

**AU Audit:** Students enrolling in courses for "Audit" will pay the same fees as students enrolled for credit. An Audit carries no grade or credit.

**S Satisfactory:** (1) Credit for courses may be granted on the basis of examination and/or evaluation of work experience and

previous education. An official College Transcript is the basis for evaluation of previous college education. (2) Students may attempt to test out of certain courses, but they should do so only during the first week of a quarter. A Drop Add should be initiated, clearly indicating "test-out grade S", last date of attendance, and signature of students' advisors.

## CREDIT HOUR

Credit is described in quarter hours (number of credits taken per quarter). Credit is based on the demands of the course and course work and a formula based on **contact hours**, hours actually spent in the classroom or lab. For example, a 3-credit class may involve 4 hours per week of actual classroom and/or lab work.

## QUALITY POINT

A quality point is a numerical value assigned to the grades students receive in credit courses. Each grade is assigned a grade point value: A=4; B=3; C=2; D=1; F or W=0. The quality points for a course are equal to the grade point value times the number of credits. A student making an "A" in a 4 credit course makes 16 quality points: grade point value (4) × number of credits (4) = total quality points (16).

## CUMULATIVE GRADE POINT INDEX

The cumulative grade point average (GPA) index is a measure of students' scholastic success. It is obtained by dividing the total number of quality points earned by the total number of credits attempted **only** in courses which contribute to the requirements of students' degree or certificate programs. The grade point index is calculated to three decimal places and will appear on each quarterly grade report.

## COURSE GRADE GRADE POINT VALUE CREDITS

XXXXXXXXX	B	3	4
XXXXXXXXX	A	4	3
XXXXXXXXX	A	4	5

$$\frac{\text{TOTAL QUALITY POINTS (44)}}{\text{TOTAL NUMBER OF CREDITS (12)}} = \text{GPA (3.666)}$$

## STANDARD OF PROGRESS

In order to qualify for graduation, students must have a minimum cumulative grade point average of 2.0 (C) for those courses applicable to their program. Students receiving some forms of financial aid are required by law to maintain a 2.00 average each quarter. Students who do not maintain a cumulative grade point average of 2.0 or at least 2.0 average for any quarter will be automatically placed on academic probation. Students are removed from probation when satisfactory progress is re-established.

# GRADUATION

## REQUIREMENTS

The College awards the degree of Associate in Applied Science or the appropriate certificate to students who meet its graduation

requirements. Graduation ceremonies are held at least once a year.

To graduate with an Associate in Applied Science Degree,



students must:

1. Earn a minimum of 90-120 degree credits, the last 15 of which must be earned at the College. The minimum required credits vary according to the program.
2. Complete all course work and receive a computable grade.
3. Complete an approved curriculum and (a) be a high school graduate, or (b) have successfully completed a high school equivalency examination (G.E.D.).
4. Satisfy all financial obligations due the College.
5. Have a minimum cumulative grade point average of 2.0 for the courses which contribute to the requirements of the degree.
6. File an application to graduate with the Record's Office at

the beginning of the final quarter before graduation.

To graduate with a Technical Certificate, students must:

1. Earn a minimum of 45 program degree credits.
2. Satisfactorily complete all course work and receive a terminal grade.
3. Complete an approved curriculum.
4. Satisfy all financial obligations due the College.
5. Have a minimum cumulative grade point average of 2.0 for the courses which contribute to requirements of the Certificate.
6. File an application to graduate with the Record's Office at the beginning of the final quarter before graduation.

## GENERAL INFORMATION

### OFFICES AND SERVICES

The following offices and services are available to students to assist them in successful completion of their courses of study at Ivy Tech:

<b>INFORMATION CENTER:</b>	Provides general information and program brochures.
<b>COUNSELING CENTER:</b>	Provides counseling for admission, academic career planning, and personal problems. Also provides information on registration, programs, orientation, and testing.
<b>FINANCIAL AID:</b>	Provides information and counseling regarding the application for and award of College work/study, grants, scholarships, loans, and BEOG.
<b>VETERANS AFFAIRS:</b>	Provides general information regarding veterans' programs, educational benefits, certification, V.A. work/study, and tutoring possibilities.
<b>SPECIAL NEEDS: SUPPORTIVE SERVICES</b>	Provides general information regarding hearing impaired students' programs, interpreting services, tutoring services, readers, oral testing, counseling and scheduling, and financial aid.
<b>BURSAR OFFICE:</b>	Receives payments for fees and transcripts. Disperses checks for VA, grants, loans, and refunds.
<b>DEVELOPMENTAL STUDIES:</b>	Provides individualized courses in the areas of reading, English, mathematics to help the student increase basic skills. Basic mathematics review and courses to help increase reading speed, spelling ability, writing skills, and study principles are offered. Students who have not earned a high school diploma may prepare for and take the GED examination.
<b>DATA SERVICES:</b>	Processes and maintains grade information, drop/adds, registration forms, student records, transcripts, and certification of graduation.
<b>MATH LAB:</b>	Math Lab personnel work with students enrolled in Tech Math I, Business Math, and Math of Finance.
<b>STUDENT LOUNGE:</b>	Provides vending area, lounge and TV area, ping pong, and video games for students on breaks between classes.
<b>WING PROGRAM:</b>	Provides counseling, testing, and other services, such as workshops and seminars, for Displaced Homemakers.

### BOOKSTORE

The Ivy Tech Bookstore sells required textbooks and supplies, gifts, and other materials. Regular bookstore hours are Monday through Thursday 8:00 am to 6:30 pm and Friday 8:00 am to 4:30 pm. During the first week of each quarter, the hours are Monday through Thursday 9:00 am to 8:00 pm; during the second week, 9:00 am to 7:30 pm.

### LIBRARY/LRC

The Library/Learning Resources Center is a source for reference materials, leisure reading materials, materials related to all program areas of the College, career exploration materials, general magazines and newspapers, audio visual materials and equipment, interlibrary book loans, textbooks on reserve for in library use, reference service, library use assistance, and pay photocopy machine.

Regular Library/LRC hours are Monday through Thursday 7:30 am to 9:30 pm and Friday 7:30 am to 4:30 pm.

### **JOB PLACEMENT**

The College Placement Office maintains records for all students interested in job placement assistance and prospective employers seeking qualified graduates of Ivy Tech's programs. Employers registering with the Office are provided the names of all qualified candidates for employment without regard to sex, race, age, national origin, or non-disqualifying handicap.

Students registered with the Placement Office will be provided information on employment opportunities, assistance in preparing a credentials packet, and assistance in obtaining copies of credentials to be released to prospective employers. Any students registered with the Office can be interviewed by all prospective employers.

### **STUDENT ACTIVITIES**

The Student Activities Office offers and promotes participation in Student Senate, Chess Club, Computer Club, American Welding Society, Black Engineers organization, S.A.M. Club, Medical Clubs, raft race, social events, softball, basketball, and bowling teams, and various card tournaments. In addition, the Office processes all student identification cards.

### **STUDENT RECORDS**

Students' official files and permanent records are secured in the

Data Services Office. The Family Educational Rights and Privacy Act (Buckley Amendment) requires that student educational records be kept private. However, students may see their records upon request. Information released to other people, such as employers, requires that the student fill out a Release of Information form.

### **PARKING**

The College provides parking lots for students, visitors, faculty, and staff. Parking is on a first-come, first-serve basis; maps are available through Security and General Information.

### **PERSONAL MESSAGES**

The College cannot accept or deliver personal messages or telephone calls for students except in cases of extreme emergency. The College must know the extent of the emergency before attempting to locate the student.

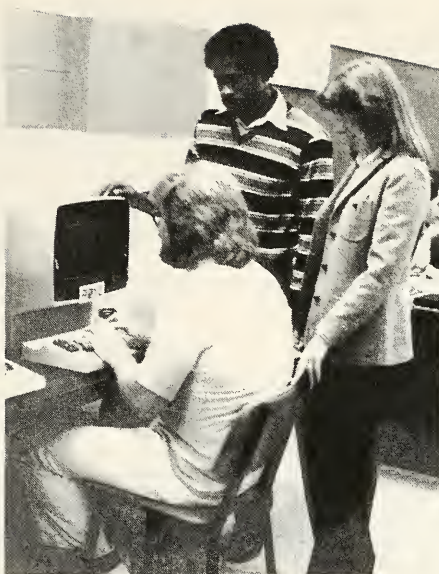
### **PERSONAL PROPERTY**

Student lockers are available for rental through the Student Senate Office. The College cannot be responsible for personal property and recommends that students mark all personal belongings for easy identification.

### **LOST AND FOUND**

Lost and found items should be turned in and/or claimed in the Security Office.





## BUSINESS DIVISION

### ACCOUNTING

**Program:** Accounting is a means of expressing in financial terms the results of the operations which take place in business, government, and other organizations. Demand for accounting workers is particularly strong in banks, insurance companies, manufacturing firms, government offices, and professional service organizations.

**Degrees:** Students successfully completing 94 credit hours of approved courses earn the Associate in Applied Science degree. The Technical Certificate is awarded to students who successfully complete a minimum of 45 approved credit hours.

**Special Requirements:** None

**Duties:** Typical duties in entry-level positions include posting accounts receivable and payable, preparing and making bank deposits, billing, working on payrolls, maintaining inventory records, purchasing supplies or preparing purchase orders, and processing expense reports.

**Positions:** Graduates are qualified for such entry-level positions as junior accountant, junior auditor, cost accounting clerk, bookkeeper, management trainee, and others. With experience and additional training, advancement to accounting supervisor, senior accountant, senior auditor, or private practice is possible.

#### Associate Degree

#### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
0110	Accounting Principles I	4*	
8110	Communications	4*	
8212	Business Mathematics	4*	
	Elective	3	15
<i>Second Quarter</i>			
0120	Accounting Principles II	4*	
1236	Office Calculating Machines	3*	
8401	Human Relations	4*	
8213	Mathematics of Finance	4	
	Elective	4	19
<i>Third Quarter</i>			
0130	Accounting Principles III	4*	
0125	Business Law I	4*	
8113	Oral Communications	4*	
	Elective	4	16
<i>Fourth Quarter</i>			
0140	Intermediate Accounting I	4	
0141	Individual Income Taxes	4	
0142	Job Order Cost Accounting	4	
0143	Business Law II	3	15

*Fifth Quarter*

0150	Intermediate Accounting II	4	
0151	Process Cost Accounting	4	
0152	Business Income Taxes OR	4	
0157	Payroll Accounting	4	
0153	Microeconomics	3	15

*Sixth Quarter*

0160	Intermediate Accounting III	4	
8501	Field Study	6*	
8111	Business Communications	4*	14

*\*Technical Certificate Courses*

NOTE: This curriculum represents a typical six-quarter schedule, but in no way restricts the College to this order. Information on course sequence and prerequisites is available from program adviser.

## COMPUTER PROGRAMMING

**Program:** The Computer Programming curriculum provides an integrated study of the theory and practice of computer programming. Students are trained to use the capabilities of the computer in solving specific business-related problems. Demand for programmers and computer operators is particularly high in areas such as banking, insurance, hospitals, manufacturing and distributing firms, transportation organizations, and government.

**Degrees:** The Associate in Applied Science degree program (100 credits) is a six quarter program which may be completed in 18 months if the student attends full time (15-17 credits per quarter) and enrolls in Summer Quarter classes. The Technical Certificate (45 credits in approved courses) is a three quarter program which may be completed in nine months.

**Special Requirements:** Problem-solving skills, math aptitude, and an 11th grade reading level are recommended for success in computer programming courses. Developmental courses in these and other areas are available at the College.

**Duties:** Computer Programming technicians operate computer consoles and related equipment, design and write computer programs, and analyze and interpret the machine's output.

**Positions:** Entry-level positions include programmer, data processing control clerk, and computer operator. With further training and experience, advancement to system analyst or administrative positions is possible.

Associate Degree			
QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
0510	Fundamentals of Data Processing	5***	
1112	Introduction to Business	4***	
8203	Technical Math I	4	
8110	Communications	4***	17
<i>Second Quarter</i>			
0520	Cobol Programming Fundamentals	5	
0521	Practical Computer Operations	5***	
0522	Problem Solving Fundamentals	3***	
8401	Human Relations	4***	17
<i>Third Quarter</i>			
0530	Advanced Cobol Programming	5	
0531	Operating Systems	5	
0110	Accounting Principles I	4***	
8113	Oral Communications	4	18
<i>Fourth Quarter</i>			
0541	Cobol Programming III	5	
8210	Statistics	3	
0120	Accounting Principles II	4	
	Programming Elective	5*	17
<i>Fifth Quarter</i>			
	Business Elective	3 or 4**	
0540	Systems Analysis & Design	4	
8111	Business Communications	4	
	Programming Elective	5*	16-17
<i>Sixth Quarter</i>			
0560	Data Communications	4	
8501	Field Project and/or Case Study	6	
	Programming Elective	5*	15
<b>ELECTIVES</b>			
<i>**Business Electives:</i>			
0166	Introduction to Management		
1114	Marketing I		
1212	Typewriting I		
0153	Microeconomics		
0125	Business Law I		
<i>*Programming Electives:</i>			
0570	Assembler Language Fundamentals		
0576	Advanced Assembler Language		
0572	Fortran Programming		
0573	RPG Programming Fundamentals		
0574	PL/I Programming		

\*\*\*\*Technical Certificate option includes these courses plus two 5 hour Data Processing electives, one 4 hour mathematics elective, and one 3-4 hour business elective.

## HOTEL/MOTEL TECHNOLOGY

**Program:** The Hotel/Motel Technology program prepares students for entry-level jobs in the hospitality industry, especially those in the hotel/motel setting. Many courses in the program develop managerial skills as well as technical skills.

**Degrees:** Graduates earn the Associate in Applied Science degree upon successful completion of 96 credits in approved courses. The Technical Certificate is awarded upon completion of 50 to 90 credits in approved courses.

**Special Requirements:** Approximately 10th grade level in math, reading, and writing is required. Developmental courses in these and other areas are available at the College.

**Duties:** Hotel/Motel workers implement room rates and credit policies, direct the operation of the kitchen and dining rooms, and manage the housekeeping, accounting and maintenance departments of the hotel.

**Positions:** Students are prepared for such jobs as front office clerk, front office cashier, assistant front office manager, assistant reservations manager, assistant rooms manager, assistant housekeeper, housekeeping supervisor, laundry manager, executive housekeeper, assistant convention manager, sales representative, assistant purchasing manager, receiving clerk, and storeroom manager.

QUARTER BY QUARTER CURRICULUM		
COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
0711	Introduction to Hospitality Management	4*
0744	Sanitation	4*
0762	Supervisory Housekeeping	4*
8110	Communications	4 16
<i>Second Quarter</i>		
0760	Hotel/Motel Maintenance I	3*
0712	Front Office Procedures	4*
8212	Business Math	4*
8111	Business Communications	4
3444	Introduction to Food Service	3* 18
<i>Third Quarter</i>		
0763	Hotel/Motel Maintenance II	3*
0752	Sales Promotion	4
8213	Math of Finance	4
8113	Oral Communications	4 15
<i>Fourth Quarter</i>		
0110	Accounting Principles I	4
0742	Food and Beverage Purchasing & Control	4*
1212	Typing I	
	OR	
1270	Introduction to Typing	3
1112	Introduction to Business	4 15-16
<i>Fifth Quarter</i>		
0120	Accounting Principles II	4
0510	Fundamentals of Data Processing	5
0911	Techniques of Supervision I	4
0733	Food & Beverage Management & Service	4* 17
<i>Sixth Quarter</i>		
0724	Financial Management & Control	4*
0323	Laws Applied & Business	
	OR	
0125	Business Law I	4
0923	Techniques of Supervision II	3*
8401	Human Relations	4 15

Total Credits Required: 96 credits Associate Degree

### \*Required Courses for Technical Certificate

Electives may be substituted for some courses at the discretion of the chairperson, and sequence of courses may vary.

Program requirements effective September, 1982. The College reserves the right to alter or amend any item contained herein without notice.

## HOTEL/MOTEL TECHNOLOGY - CULINARY ARTS OPTION

**Program:** This program is affiliated with the Indiana Restaurant Association, American Culinary Federation, and Chef de Cuisine Association of Indiana. Labor projections indicate a high demand for persons in various food service careers both in Indiana and nationwide.

**Degrees:** Graduates of the Culinary Arts option earn a Technical Certificate upon satisfactory completion of 54 to 90 credit hours of approved classes. This program also provides the related training for apprentice chefs who are trained on-the-job to become certified as cooks by the American Culinary Federation Apprenticeship Program. The Apprenticeship Committee selects new apprentices in August and February each year. Students who wish to pursue an Associate Degree in Culinary Arts may do so by attaining 96 credits in approved courses under the Hotel/Motel Technology Program.

**Special Requirements:** Approximately 10th grade level in math, reading, and writing; appropriate level of manual dexterity in a simple laboratory test are required for admission. A kitchen tool set currently costing approximately \$50 and two sets of uniforms costing approximately \$60 may be required.

**Positions:** Food preparation positions include cook, banquet chef, sous chef, kitchen steward, garde manger, and breakfast chef. Food management jobs include dining room manager, assistant food and beverage director, assistant catering manager, assistant manager, and purchasing manager. Field study opportunities are available for interested students in various food service establishments throughout the area.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
First Quarter			
8201	Applied Math I	4	
3444	Introduction to Food Service	3	
0711	Introduction to Hospitality Management	4	
0731	Basic Cooking Methods I	4	15
Second Quarter			
3452	Food Service I	3	
0743	Basic Cooking Methods II	4	
3455	Menu Design	4	
0744	Sanitation	4	15
Third Quarter			
3456	Food Specialties II: Garde Manger I	3	
0742	Food & Beverage Purchasing & Control	4	
0737	Meat Preparation	4	
8401	Human Relations	4	15
Fourth Quarter			
3449	Food Specialties III: Garde Manger II	3	
8501	Field Study	6	9

Approved electives may be substituted for some courses at the discretion of the Chairperson. Electives include but are not limited to the following:

3446	Food & Beverage Service	3
3454	Food Specialties: Baking	3
0724	Financial Management & Control	4
0732	Fish and Seafood Preparation	4
0738	Meat I	4
0739	National Dishes	3
0733	Food & Beverage Management & Service	4

Courses are not necessarily offered in outlined sequence.

Program requirements effective September, 1982. The college reserves the right to alter or amend any item contained herein without notice.



## INDUSTRIAL MANAGEMENT

**Program:** The Industrial Management Program is designed to provide students with formal training in management skills. The program teaches how to set goals, plan, organize, staff, direct, motivate, and control personnel in the work setting. Career opportunities are expected to grow steadily for persons with creative management skills and those who are well-trained in supervisory skills.

**Degrees:** The Associate in Applied Science degree is awarded when a student has satisfactorily completed 92 credit hours of required courses. A 45 credit hour Technical Certificate is available for graduates of other Associate degree programs. Supervisors and managers who seek to improve their skills may earn a 15 credit hour Occupational Certificate.

**Special Requirements:** NONE

**Duties:** Typical duties of a manager would include responding to supervisory problems, communicating effectively, as well as evaluating, analyzing, and applying the principles of management in the work setting.

**Positions:** Graduates may be employed in manufacturing, service, or government agencies; entry-level positions include manager trainee, departmental assistant, and personnel assistant.

Associate Degree Curriculum		
Required Technical Courses		
COURSE NUMBER	DESCRIPTION	CREDITS
0911	Techniques of Supervision I	4**
0923	Techniques of Supervision II	3**
0571	Intro to Data Processing	3
0122	Business Law I	4
0921	Principles of Ind. Safety	3**
0941	Labor Relations	3**
0901	Quality Control	4**
0951	Production Planning & Control	3
0110	Accounting Principles I	4
	Economics	3*
		34

Required Related Courses		
8110	Communications	4**
8401	Human Relations	4**
8203	Technical Mathematics I	4
8113	Oral Communications	4
8114	Technical Reporting	4
OR		
8111	Business Communications	4
8210	Statistics	3
0912	Manufacturing Organization I	3
0925	Manufacturing Organization II	3
0931	Time & Motion Study	3
0932	Safety Regulations	3
0942	Purchasing & Inventory Control	4
0950	Manf. Costs & Value Analysis	3
0952	Work Analysis & Improvement	3
0954	Materials Handling	3
0956	Managerial Cost Accounting	3
0960	Economics of Industry	3
0961	Plant Layout & Process Plan.	3
0962	Traffic & Trans. Management	3
0963	Manufacturing Processes I	3
0964	Industrial Assembly Techniques	3
0967	Drafting & Manf. Standards	3
0968	Case Problems in Management	3
0970	Personnel Management	4
0971	Manufacturing Processes II	3
0973	Training for Results	3
0980	Case Problems in Labor Relations	3
0981	TA for Managers	3
0982	Management by Objectives	3
0983	Time Management	3

\*One of the following: 0960 Economics of Industry  
0153 Microeconomics  
0154 Macroeconomics

\*\*Required courses for Technical Certificates  
(plus electives to total 45 credit hours)

Required courses for Occupational Certificate:  
Courses 0911, 0923, 8110, and 8401.



## LIBRARY AIDE

**Program:** Libraries need technicians to help carry on their operations. The Library Aide program prepares students for entry level positions in libraries of all types.

**Degrees:** The Library Aide Occupational Certificate program can be completed in six to nine months. To further expand his/her opportunities, a student may take additional elective courses leading toward an Occupational Certificate in Secretarial Sciences or Data Processing. The combined certificate program could be finished in one year.

**Special Requirements:** NONE

**Duties:** Library Aides support and assist librarians by performing such duties as checking materials in and out, processing new materials for use, filing cards in the card catalogue, answering simple reference questions, operating audio-visual equipment, typing catalogue cards and orders, and keeping magazine records.

**Positions:** Graduates have a variety of work situations to choose from – behind the scenes jobs in the technical operations of a library or public service jobs where there is contact with adults and children, or with doctors, researchers, teachers, students, and other patrons.

### LIBRARY AID PROGRAM CURRICULUM

**NOTE TO STUDENTS:** The Library Aide Program is currently being revised and is subject to change in the near future. Students should ask the Program Chairperson for specific program/course requirements.

COURSE NUMBER	DESCRIPTION	CREDITS	
<b>Required Technical Courses</b>			
2417	Library and LRC Fundamentals I	3	
2418	Library and LRC Fundamentals II	3	
2419	Library Forms and Records	3	
2415	AV Equipment Operations & Maintenance	3	
2427	Library Operations & Procedures	5	
8501	Field Study	7	24
<b>Required Related Courses</b>			
1212	Typing I	4	
1222	Typing II	4	
8110	Communications	4	
8401	Human Relations	4	16
<b>Electives (optional)</b>			
1255	Introduction to Word Processing	6	
1274	Supervision of Word Processing Operations	4	
1236	Office Calculating Machines	3	
2428	Library Technology Seminar	1-4	
0510	Fundamentals of Data Processing	5	
0522	Problem Solving Fundamentals	3	
0568	BASIC Language Programming	4	
1226	Data Entry	4	

## MARKETING

**Program:** Marketing is business. It is the payoff, the bottom line. Effective marketing is essential in a free enterprise economy. It is the action center for buyer acceptance or rejection of supplier goods, services and ideas. The marketing program provides a broad training base for business operations and for business management.

**Degrees:** The Associate in Applied Science degree is awarded upon successful completion of 90 credit hours. A Technical Certificate is earned with completion of 45 credit hours. Full-time students (minimum 12 credit hours) usually are scheduled only three mornings or evenings per week. Courses usually are offered during the same quarter in both morning and evening hours.

**Special Requirements:** None

**Careers:** One-third of people at work in the American free enterprise system are engaged in activities relating to marketing. Career opportunities are to be found in retailing, wholesaling and manufacturing; in the industrial and consumer markets; in profit and non-profit organizations.

CURRICULUM		
COURSE NUMBER	DESCRIPTION	CREDITS
<b>Technical Required Courses</b>		
1112	Introduction to Business	4
0320	Management Principles	4
1114	Marketing	4
0125	Business Law I	4
1115	Sales Techniques	4
1116	Marketing II	4
1135	Principles of Retailing	4
1136	Physical Distribution	4
1151	Introduction to Public Relations	4
1147	OR Principles of Advertising	4
0110	Accounting Principles I	4
0112	OR Accounting for Non Majors	4
<b>Related Required Courses</b>		
8110	Communications	4
8111	Business Communications	4
8212	Business Math	4
8213	Math of Finance	4
8401	Human Relations	4
<b>Elective Courses</b>		
totaling 30 credits drawn from a broad college offering, including but not limited to:		
1137	Buying and Inventory Control	4
1148	Principles of Insurance	4
1157	Entrepreneurship	4
0321	Office Administration	4
0322	Personnel Administration	4
NOTE: Technical Certificate requirements total 45 credits. Composition of courses arranged with approval of Program Chairperson.		

## QUALITY CONTROL

**Program:** Job prospects for a person trained in the technology of Quality Control are excellent. The need for qualified people is so urgent that the American Society of Quality Control has devoted many hours to the development of the Ivy Tech program.

**Degrees:** The Associate in Applied Science degree is awarded to students when they complete 95 credit hours of required and elective courses.

**Special Requirements:** Certain skill levels in math, reading, and writing will enhance progress in the program. Developmental classes in these and other areas are available at the College.

**Duties:** The quality control function is an integral and essential part of a manufacturing operation. The quality control technician is found in a variety of production fields including agricultural/biological, chemical, and industrial engineering.

**Positions:** Graduates of the program will have entry-level skills in the following areas: statistical concepts, including development and use of sampling plans and control charts; the science of measurement; non-destructive testing; basic engineering concepts; reliability techniques; quality control procurement practices; and basic management principles.

ASSOCIATE DEGREE CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<b>Required Technical Courses</b>			
0901	Quality Control Concepts & Tech I	4	
0902	Quality Control Concepts & Tech II	4	
0903	Quality Control Engineering Prin & Tech	4	
0904	Statistical Concepts & Techniques	4	
0905	Quality Control Engineering Theory & Apl	4	
0907	Reliability Objectives	4	
0908	Intro to Nondestructive Tests	4	
0909	Mechanical Metrology	4	
0915	Electrical Metrology	4	
0916	Procurement Quality Control	4	
0917	Reliability Techniques	4	44
<b>Required Related Courses</b>			
0911	Techniques Supervision	4	
8110	Communications	4	
8111	Business Communications	4	
8203	Technical Mathematics I	4	
8204	Technical Mathematics II	4	
8301	Physics (Physical Science)	4	
8401	Human Relations	4	
7529	Basic Drafting	3	
8209	Trigonometry	3	
0906	Basic Print Reading	3	37
<b>Electives</b>			
0875	Radiology	4	
0876	Radiography Safety	4	
0910	Electronics Quality Control	4	
0879	Ultrasonic Testing	4	
0880	Eddy Current	4	
7654	Practicum in Metallurgy	1	
0942	Purchasing	4	
0328	Laws Applied to Business	4	
0510	Fundamentals of Data Processing	5	
0963	Manufacturing Processes I	3	
7565	Metallurgy Fundamentals	3	

## SECRETARIAL-ADMINISTRATIVE

**Program:** The Secretarial-Administrative Program is designed to give the student the necessary skills to enter the job market as a secretary. Demand for administrative secretaries is particularly high in banks, insurance companies, real estate firms, government agencies, and other establishments providing services to the public.

**Degrees:** The Associate in Applied Science degree is awarded upon successful completion of six quarters. The Technical Certificate is earned by successful completion of three quarters. The student must meet minimum statewide standards in skill courses in order to graduate (e.g., shorthand and typing).

**Special Requirements:** To be admitted to the program, students should have an approximate 9th grade level in math, reading, and comprehension. Developmental courses in these and other areas are available at the College.

**Duties:** The administrative secretary handles all secretarial duties including dictation and typing. The duties for an administrative secretary range from filing, routing mail, and answering letters, to statistical research and writing reports.

**Positions:** Graduates will have training in typing, shorthand, filing, personal appearance and poise, math, communication skills, postal regulations, and the operation of the various pieces of office equipment, including word processors, necessary to the successful operation of an office environment. Positions are available in all areas of business, private and public, who require secretarial services.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
1210	Shorthand I	4**	
1212	Typewriting I	4	
1214	Personal Development	3	
8110	Communications	4	15
<i>Second Quarter</i>			
1220	Shorthand II	4**	
1222	Typewriting II	4	
8212	Business Math	4	
1224	Records Management	3	
	Elective	3	18
<i>Third Quarter</i>			
1230	Shorthand III	4**	
1232	Typewriting III	4	
8111	Business Communications	4	
1236	Office Calculating Machines	3	15
<i>Fourth Quarter</i>			
1240	Shorthand IV	4	
1241	Clerical Office Procedures	3	
1242	Typewriting IV	4	
0125	Business Law I	4	15
<i>Fifth Quarter</i>			
1250	Shorthand V OR	4	
0110	Accounting Principles I	4	
8113	Oral Communications	4*	
8401	Human Relations	4	
	Electives	4	16
<i>Sixth Quarter</i>			
1262	Typewriting V	4	
8501	Field Study/ Coop Education	4	
	Electives	5	15

NOTE: 1255 Introduction to Word Processing  
1256 Word Processing Operations  
1274 Supervision of Word Processing  
Operations

These three courses are recommended electives for both the Associate Degree and Technical Certificate. Contact Program personnel for information and minimum course entry requirements.

**ELECTIVES:** Any Business Division Course

\*For Associate Degree candidates, Oral Communications should be taken before Business Communications.

\*\*Any approved Business Division elective may be substituted for Shorthand I, II, III for a Technical Certificate.

The sequence of courses in the Program may change depending upon when a student enters the Program.

## SECRETARIAL-MEDICAL

**Program:** The Secretarial-Medical program provides instruction for initial employment or upgrading of skills. Demand for medical secretaries is expected to increase along with other areas in the secretarial field.

**Degrees:** Graduates of the Secretarial-Medical program are awarded a Technical Certificate upon successful completion of a minimum of 47 credit hours. An optional fourth quarter consisting of 15 credit hours is available for students desiring additional medical or secretarial related coursework. The student must meet minimum statewide standards in skill courses in order to graduate (e.g., typing).

**Special Requirements:** To be admitted to the program, students should have an approximate 9th grade level in math, reading, and comprehension. Developmental courses in these and other areas are available at the College.

**Duties:** Medical Secretaries are responsible for a variety of administrative and clerical activities in medical offices. They greet patients, schedule appointments, obtain patient information, arrange hospital admissions, and schedule surgeries. Medical Secretaries also maintain records, answer telephone calls, order supplies, handle correspondence, bill patients, complete insurance forms, and transcribe dictation. In some offices they may maintain financial records, handle credit and collections, and have other bookkeeping responsibilities.

**Positions:** Entry-level positions are in doctors' offices, clinics, hospitals, or other health-related organizations.

TECHNICAL CERTIFICATE			
COURSE NUMBER	DESCRIPTION	CREDITS	
<b>Required Technical Courses</b>			
1212	Typewriting I	4	
1214	Personal Development	3	
1222	Typewriting II	4	
1224	Records Management	3	
1236	Office Calculating Machines I	3	
3713	Medical Office Bookkeeping	4	
3712	Medical Office Procedures	4	
9355	Medical Terminology	2	
3743	Machine Transcription Med. I	3	
1232	Typewriting III	4	31-34
<b>Required Related Course</b>			
8110	Communications	4	
8111	Business Communications	4	
8212	Business Mathematics	4	
8401	Human Relations	4	16-17
<b>Electives</b>			
3765	Medical Insurance	3	
9350	Medical Law and Ethics	2	
9349	Anatomy	4	
9349	Physiology	4	
3729	Medical Assistant Clinical Externship	4	
9310	Pharmacology	4	
1256	Word Processing Operations	4	
1255	Introduction to Word Processing	2	
1274	Supervision of Word Processing Operations	4	
Technical Certificate (Minimum of 47 credit hours). Optional fourth quarter: 15 credit hours			

## SMALL ENTERPRISE MANAGEMENT

**Program:** Small Enterprise is an option of the Small Enterprise and Office Operations Management program. The focus is on small business operations, whether as an owner/operator or as a generalist administrator. The program provides a broad training base for building business knowledge and confidence. The program allows for a wide latitude of electives drawn from the College's total offering of business and trade courses (e.g. one-third of AAS degree requirements are student selected).

**Degrees:** The Associate in Applied Science degree is awarded upon successful completion of 90 credit hours. A Technical Certificate is earned with completion of 45 credit hours scheduled with approval of the Program Chairman. Courses usually are offered during the same quarter in both morning and evening hours. Only three mornings or three evenings usually provide a schedule for those wishing full-time status (a per quarter weekly schedule of 3 courses of 12 credits).

**Special Requirements:** None.

**Careers:** Whether as entrepreneur or as business generalist, small business represents a broad opportunity in the American free enterprise system, such as merchant retailers, business services, sales agents and skilled trades.

CURRICULUM		
COURSE NUMBER	DESCRIPTION	CREDITS
<b>Required Technical Courses</b>		
1112	Introduction to Business	4
0320	Management Principles	4
1114	Marketing I	4
0125	Business Law I	4
1135	Principles of Retailing	4
1147	Principles of Advertising	4
1137	Buying and Inventory Control	4
1148	Principles of Insurance	4
1157	Entrepreneurship	4
0110	Accounting Principles I OR	4
0112	Accounting for Non Majors	4
		40
<b>Required Related Courses</b>		
8110	Communications	4
8111	Business Communications	4
8212	Business Math	4
8213	Math of Finance	4
8401	Human Relations	4
		20
<b>Elective Courses totaling 30 credits drawn from a broad college offering including but not limited to:</b>		
0321	Office Administration	4
0322	Personnel Administration	4
1151	Introduction to Public Relations	4
1115	Sales Techniques	4
1116	Marketing II	4
1136	Physical Distribution	4

### REQUIREMENTS FOR AAS DEGREE: 90 credit hours

NOTE: Technical Certificate requirements total 45 credits. Composition of courses arranged with approval of Program Chairman.



## SMALL ENTERPRISE MANAGEMENT/OFFICE OPERATIONS MANAGEMENT

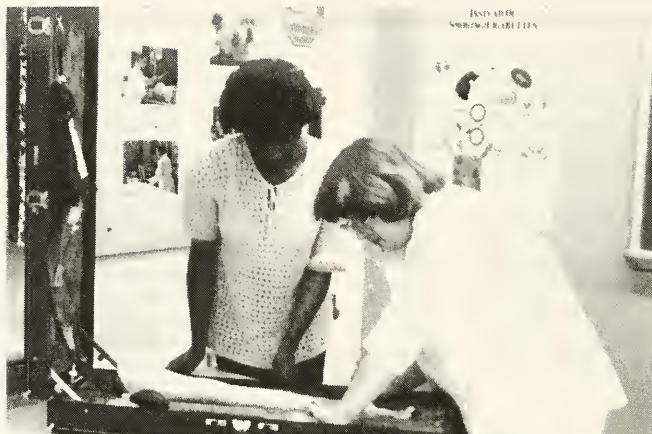
**Program:** Office Operations is an option of the Small Enterprise and Office Operations Management program. The focus is on administration as opposed to preparation for specific clerical skills. The program is structured to adapt to individual objectives by providing a wide latitude of elective courses (e.g. one-third of AAS degree requirements are student selected from the total offering by the College).

**Degrees:** The Associate in Applied Science degree is awarded upon successful completion of 90 credit hours. A Technical Certificate is earned with completion of 45 credit hours scheduled with approval of the Program Chairman. Courses usually are offered during the same quarter in both morning and evening hours. Only three mornings or three evenings usually provide a schedule for those wishing full-time status (a per quarter weekly schedule of 3 courses of 12 credits).

**Special Requirements:** None.

**Careers:** Career opportunities relating to office administrative services and office management are to be found in all employment segments of the economy - manufacturing, marketing, services, government. Positions primarily are staff supportive to line operations management.

CURRICULUM		
COURSE NUMBER	DESCRIPTION	CREDITS
<b>Required Technical Courses</b>		
1112	Introduction to Business	4
0320	Management Principles	4
1114	Marketing I	4
0125	Business Law I	4
0321	Office Administration	4
0322	Personnel Administration	4
1137	Buying and Inventory Control	4
1151	Introduction to Public Relations	4
0110	Accounting Principles I OR	4
0112	Accounting for Non Majors	4
0120	Accounting Principles II OR	4
	Accounting Elective	4
		40
<b>Required Related Courses</b>		
8110	Communications	4
8111	Business Communications	4
8212	Business Math	4
8213	Math of Finance	4
8401	Human Relations	4
		20
<b>Elective Courses totaling 30 credits</b> drawn from a broad college offering, including but not limited to:		
1135	Principles of Retailing	4
1147	Principles of Advertising	4
1148	Principles of Insurance	4
1157	Entrepreneurship	4
1115	Sales Techniques	4
1116	Marketing II	4
1136	Physical Distribution	4
Requirements for AAS Degree - 90 credit hours		
NOTE: Technical Certificate requirements total 45 credit hours. Composition of courses arranged with approval of Program Chairman.		



## HEALTH DIVISION

### HUMAN SERVICES

**PROGRAM:** What is it?

Human Services is an all-encompassing phrase which is often used to label services provided to individuals or groups. It includes activities that focus on helping people to live better lives. In its broadest sense, Human Services is a part of government welfare programs, education, mental retardation services, mental health organizations, child care programs, geriatric facilities, alcohol & drug detoxification programs, and criminal justice and corrections program.

The Human Services Program at Ivy Tech is a new program designed to prepare the entry level and developing practitioner in the skills, knowledge, and attitudes necessary for working effectively in a variety of human services settings. It addresses the needs of employed individuals who would like to enroll in continuing education courses to increase their knowledge and skills in their present human services jobs.

**DEGREES:** The program has the approval to offer post secondary training at the Associate Degree and Technical Certificate levels. Directed practice in a variety of community agencies would be provided to enable the student to gain specialized experience to parallel the classroom work.

The program will also offer credit & noncredit courses in the form of workshops, seminars, and selected courses.

**SPECIAL REQUIREMENTS:** The requirements for the Associate Degree and Technical Certificate programs are as follows:  
 10th grade reading level  
 Acceptable level of written communication skills

**DUTIES:** The Human Services worker is a generalist who has a certain core of knowledge, skills, & values, but who also has specialized training in a certain field or program area. Specialization is provided by elective courses & selected field experience.

The Human Services worker may work with various populations who need assistance, for example:

- The preschool child
- The adolescent
- The troubled adult
- The physically and/or mentally handicapped person
- The elderly

The worker's duties could involve providing individual or group activities, supportive care, and/or education programs.

**POSITIONS:** Human Services workers may be employed in several different settings, such as:

Day Care Centers  
Group Homes  
Residential Facilities  
State Hospitals  
Community Service Organizations

Mental Health Facilities  
Nursing Homes  
Nonprofit Organizations  
Governmental Agencies

Additional employment opportunities will occur as the needs of the community are expressed and documented followed by appropriate and effective program development.

**COURSES:** Workshops, seminars, and credit courses may be offered throughout the year to focus on pertinent topics for groups such as child care workers, youth workers, residential care workers, and nursing home staff.

**Social Services in Long-Term Care** is a short course, which will be offered in cooperation with the Indiana State Board of Health, periodically during the year.

Check on a quarterly basis with General Information for an update of current courses.

## MEDICAL ASSISTANT

**Program:** The Medical Assistant Program is a four-quarter program accredited by the American Association of Medical Assistants and the American Medical Association.

**Degrees:** Upon satisfactory completion of 71 credit hours, including a three-month externship in a physician's office, graduates are awarded a Technical Certificate. Graduates may sit for the national certification examination.

**Special Requirements:** Applicants to the program must have a high school diploma or GED and complete the College testing program. In addition to the other college fees, currently uniforms and equipment for the program cost approximately \$200.

**Duties:** Medical Assistants perform a wide variety of nursing, laboratory, and business tasks including preparing patients for physical examination, cleaning and sterilizing equipment and maintaining supplies, collecting specimens, performing simple laboratory tests, and carrying out the business office activities of the doctor.

**Positions:** Employment opportunities may be found in physicians' offices, clinics, insurance companies, pharmaceutical and hospital supply companies, health maintenance organizations, family practice centers, and hospitals.

### Technical Certificate Curriculum

COURSE NUMBER	DESCRIPTION	CREDITS	
9349	Anatomy & Physiology	4	
1212	Typing I	4	
3721	Medical Office Pro. Adm	4	
3713	Medical Office Bookkeeping	4	
9355	Medical Terminology	4	20
<hr/>			
9349	Anatomy & Physiology	4	
3719	Medical Typing I	3	
3765	Medical Insurance	3	
3730	Medical Lab	4	
3732	Med. Office Communications	4	18
<hr/>			
3743	Medical Transcription I	3	
9350	Medical Law & Ethics	2	
3766	First Aid Emer. Care	3	
9310	Pharmacology	4	
3712	Medical Office Procedures I	4	
9359	Cardio-Pulmonary Resuscitation	1	17
<hr/>			
3742	Medical Office Procedures II	4	
8401 8402	Human Relations Applied Psy.	4	
3729	Medical Externship (clinical)	4	
3769	Medical Externship (admin.)	4	16

## MEDICAL LABORATORY TECHNICIAN

**Program:** The Medical Laboratory Technician Program is a seven quarter, full-time, day program preparing students for employment in a clinical laboratory. Prerequisite classes begin in the Fall Quarter with full acceptance being made for the Winter Quarter based on the Fall Quarter G.P.A. The first five quarters of classes are based at the Indianapolis campus. The last two quarters students are placed in one of the seven area hospitals or blood centers with which the College is affiliated for clinical training. The clinicals are: Johnson County Memorial Hospital, Franklin; Morgan County Memorial Hospital, Martinsville; Hendricks County Hospital, Danville; Riverview Hospital, Noblesville; Hancock County Memorial Hospital, Greenfield; Decatur County Memorial Hospital, Greensburg, and Central Indiana Regional Blood Center, Indianapolis.

Since the number of clinical slots is limited, acceptance into the clinical portion of the program will be determined at the completion of the fifth quarter based on academic achievement and interview with the clinical affiliates.

**Degree:** Upon graduation, students will receive an Associate in Applied Science degree. The MLT-AP program has been reviewed by the National Accrediting Agency for Clinical Laboratory Science for accreditation by the Committee on Allied Health Education and Accreditation of the American Medical Association. This accreditation allows graduates to sit for the American Society of Clinical Pathologists and the National Certification Agency for Medical Laboratory Personnel registries.

**Special Requirements:** In order to register for the program courses, applicants are required to have a physical examination. Applicants must also be high school graduates or equivalent. They are recommended to have taken in high school 2 units of algebra, 2 units of chemistry, and 2 units of biology with a minimum grade of a "C". The overall high school GPA recommended is 2.5 (C+). Students must have a 10th grade reading level comprehension and adequate math skills.

In addition to College fees and divisional charges, costs for books, supplies, uniforms, field trips, and composite pictures range from \$50 to \$120 per quarter depending on the quarter in the program. Students must provide their own transportation to IVTC and the clinicals.

**Duties:** A Medical Laboratory Technician performs routine laboratory procedures, defines and solves associated problems, and utilizes quality control techniques, all of which aid in the diagnosis, treatment, and monitoring of patients.

**Positions:** Medical Laboratory Technicians may find positions in hospitals, independent laboratories, physicians' offices, clinics, public health agencies, pharmaceutical firms, and research institutions.

Associate Degree Curriculum			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter (Prerequisite Quarter)*</i>			
9305	Tech Math for Health Occupations	5	
2832	Immunology Techniques	4	
9349	Anatomy and Physiology	4	
2811	Fundamentals of Laboratory Techniques	4	17
<i>Second Quarter</i>			
2851	General Chemistry	3	
9349	Anatomy and Physiology	4	
2813	Immunohematology Techniques	4	
2814	Routine Analysis Techniques	4	15
<i>Third Quarter</i>			
2820	Hematology Techniques	8	
2823	Microbiology Techniques	6	
2860	Advanced Chemistry Techniques	2	
2863	Instrumentation	3	19
<i>Fourth Quarter</i>			
0568	BASIC Language Programming	4	
8110	Communications	4	
8401	Human Relations	4	12
<i>Fifth Quarter</i>			
2829	Parisitology and Mycology	2	
2830	Chemistry Techniques	8	
9350	Med. Law and Ethics	2	12
<i>Sixth Quarter</i>			
2821	Blood Banking Applications	4	
2822	Routing Analysis Applications	2	
2831	Hematology Applications	4	
2842	Immunology Applications	2	12
<i>Seventh Quarter</i>			
2840	Chemistry Applications	6	
2841	Microbiology Applications	6	12

NOTE: Curriculum is subject to change.

\*For admission to the M.L.T. program you must complete the courses in this prerequisite quarter with a "C" or better grade. Depending on the number of clinical positions available, students for entry into M.L.T. will be selected according to their GPA.

## NURSE AIDE/HOME HEALTH AIDE

**Program:** Students in the Nurse Aide/Home Health Aide courses will learn a variety of skills which contribute to the care and well being of the patient.

**Degrees:** Upon successful completion of the program, the student earns an Occupational Certificate. Test-out or advanced placement in courses will be considered for those who have completed a high school, nursing home, or other home care program.

**Special Requirements:** Applicants are required to be tested and to schedule a personal interview with the Program Chairperson. The College prefers applicants to have a high school diploma or GED.

Students will be sent to a nursing home and to the Visiting Nurses Home Care Association for two days each week for clinical experience.

Currently, uniforms and equipment required for the program cost approximately \$100 in addition to other college fees.

**Duties:** Typical duties of the Nurse Aide/Home Health Aide include bathing patients; bedmaking; taking temperature, pulse, respiration, and blood pressure readings; doing bladder irrigations, and administering enemas.

**Positions:** Employment opportunities may be found in nursing homes, patients' homes, home health care agencies, and possibly hospitals.

### OCCUPATIONAL CERTIFICATE

COURSE NUMBER	DESCRIPTION	CREDITS
9330	*Survey of Anatomy and Physiology	2
9327	*Nurse Aide Techniques	6
3740 or 9355	*Medical Terminology	2
9332	*Math for the Nurse Aide	3
	**Electives	3-5 16-18

\*Courses may be taken separately.  
\*\*Recommended: Pharmacology and Medication  
Administration - 9333



## PRACTICAL NURSING

**PLEASE NOTE:** Because of the volume of applicants, the chairperson of the Practical Nursing Program has suspended accepting applications **until September 1983**. At that time, new program entrance guidelines will have been established.

**Program:** The Practical Nursing Program is accredited by the Indiana State Board of Nurses' Registration and Nursing Education and the National League for Nursing.

**Degrees:** Students who successfully complete the four quarters (74 required credits) are granted a Technical Certificate. (All courses must be passed with a "C" or above.) Graduates are eligible to take the examination of the Indiana State Board of Nurses' Registration and Nursing Education which is required to become a licensed practical nurse in Indiana.

**Special Requirements:** Applicants are encouraged to apply one year in advance of anticipated admission. Program entry requirements are as follows:

- (1) IVTC application
- (2) high school diploma or GED certificate scores
- (3) pre-admission College reading comprehension and math tests with scores at or above 11th grade on reading comprehension and 85% on the math test
- (4) a personal interview with the program chairman may be scheduled
- (5) a work reference if applicant has been working in the health care field
- (6) upon acceptance in the program, a physical examination is required

In addition to College fees and textbook costs, uniforms currently costing approximately \$140 are required.

**Duties:** Graduates of the Practical Nursing Program, under the direction of a physician or registered nurse, provide direct patient care in stable nursing situations and work in a close relationship with a registered nurse in more complex situations. A partial list of functions includes patient hygiene, taking blood pressure, performing therapeutic measures, administering medications, monitoring patients receiving intravenous therapy, and recording patient data.

**Positions:** Employment is available in hospitals, nursing homes, private duty, and some public health agencies.

### QUARTER BY QUARTER CURRICULUM Technical Certificate

COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
4401	Foundations of Nursing	3
4402	Collecting, Reporting and Recording Patient Data	3
4403	Therapeutic Measures	3
4406	Holistic Approach	2
4407	Health	2
4407	Nutrition	2
9310	Pharmacology	2
9349	Anatomy and Physiology	4
4437	Dermatologic and EENT Nursing	1
<hr/>		
<i>Second Quarter</i>		
9349	Anatomy and Physiology	4
9310	Pharmacology	2
4449	Practical Nurse In Today's Society	2
4403	Therapeutic Measures	3
4438	Gerontology	2
4439	Geriatric Clinical Nursing	3
4434	Intravenous Therapy	2
4408	Oncologic Nursing	1
<hr/>		
<i>Third Quarter</i>		
4423	Medical Surgical Clinical Nursing I	7
4432	Medical Surgical Clinical Nursing II	2
4425	Musculoskeletal and Neurological Nursing	2
4415	Cardiovascular Nursing	2
4419	Respiratory Nursing	2
4416	Gastrointestinal Nursing	2
4412	Endocrine Nursing	2
<hr/>		
<i>Fourth Quarter</i>		
4432	Medical Surgical Clinical Nursing II	4
4442	Maternal Clinical Nursing	2
4454	Pediatric Clinical Nursing	2
4440	Maternal Health Nursing	3
4453	Pediatric Nursing	3
4426	Genitourinary	2
<hr/>		

## RADIOLOGIC TECHNOLOGY

**Program:** The Radiologic Technology Program is accredited through the Committee on Allied Health Education and Accreditation. Locally, the program is clinically affiliated with three hospitals and is limited to approximately 20 students per year according to guidelines of the accrediting agency.

**Degrees:** The program, which begins in the Fall Quarter only, lasts for 24 continuous months (8 quarters) and is full-time. At the end of the program, graduates receive an Associate in Applied Science degree and are eligible to take the national certification test of the American Registry of Radiologic Technologists.

**Special Requirements:** To be admitted to the program, applicants must be at least 18 years old. Applicants must be high school graduates or hold the GED. Their high school total GPA must be "C" (2.00), and they should have the following high school record:

- (1) 4-6 units of English with a "C" average
- (2) 2 semesters of Algebra with a "C" average
- (3) 2 semesters of Biology with a "C" average
- (4) Reading level of 11th grade or higher

A physical examination is necessary after a student is accepted in the program. An interview with the program Admissions Committee is required for all eligible applicants.

In compliance with a directive from the accrediting agency, each student must complete specific hospital experience. Students may be able to manage 10-15 hours of part-time employment per week. The program curriculum is based on 35-40 hours attendance per week between College and clinical assignment.

**Duties:** Radiologic Technologists, often referred to as X-ray technicians, work in hospitals, clinics, and physicians' offices. They position patients and set exposure controls for diagnostic radiographs of the body parts. The technologist aids the physician during 25 percent of the procedures. Some nursing skills are necessary.

**Positions:** Certified Technologists are employed in hospitals, clinics, physicians' offices, federal and state health agencies as well as some educational institutions.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
9350	Medical Law & Ethics	2	
9351	Anatomy	4	
9355	Medical Terminology	2	
4609	Nursing Procedures for X-ray	2	
4620	Orientation to X-ray Technology	4	
	Clinical Observation	0	
	Elective	2-4	14-18
<i>Second Quarter</i>			
9305	Technical Math for Health Occupations	5	
9352	Physiology	4	
4624	Radiographic Positioning I	3	
4623	X-ray Clinical Education I	5	17
<i>Third Quarter</i>			
3248	Basic Life Support	3	
4625	Principles of Exposure I	3	
4633	Radiographic Positioning II	2	
4638	X-ray Clinical Education II	6	
4613	Radiation Physics I	3	17
<i>Fourth Quarter</i>			
4634	Prin. of Radiology Exposures II	3	
4643	Radiographic Positioning III	3	
4648	X-ray Clinical Education III	6	12
<i>Fifth Quarter</i>			
4622	Radiation Physics II	3	
4650	Radiographic Positioning IV	3	
4655	X-ray Clinical Education IV	6	12
<i>Sixth Quarter</i>			
4642	Imaging Techniques	3	
4668	X-ray Clinical Education V	6	
9356	Disease Conditions	3	
	Elective	2-4	14-16
<i>Seventh Quarter</i>			
4661	Special Procedures	3	
4672	Radiobiology	3	
4678	X-ray Clinical Education VI	6	12
<i>Eighth Quarter</i>			
4685	General Examination Review	4	
4688	X-ray Clinical Education VII	6	
	Elective	2-4	12-14

## RESPIRATORY THERAPY

**Program:** The Respiratory Therapy Program is accredited by the Committee on Allied Health Education of the American Medical Association. Clinical education is offered through several area hospitals.

**Degrees:** The program duration is five quarters (15 months) full-time, and seven quarters (21 months) part-time. Full-time students start the program in late August of each year; part-time students start in the Spring Quarter. Graduates of this program receive a Technical Certificate and are eligible to take the National Board of Respiratory Therapy Certification Examination making them nationally certified.

**Special Requirements:** The following admission requirements must be met before a student begins course work:

- (1) Completed IVTC application
- (2) High School graduate or GED
- (3) Adequate math skills as determined by standardized entrance testing
- (4) Reading level of 11th grade or above

The following are requirements for formal Program admission during the 2nd through 5th quarters:

- (1) Scheduled tour of at least one local hospital respiratory therapy department.
- (2) Interview
- (3) Successful completion (at least "C" grade) in each of the five first quarter courses
- (4) Satisfactory physical examination completed by a licensed physician
- (5) All students meeting the above requirements will be considered for formal Program admission. However, because of clinical capacity limitations, students with the best academic record and interview score will receive first consideration for formal admission.

Clinical education courses are conducted during day, evening, and night shifts. Students are required to rotate through all shifts and provide their own transportation.

Total current costs for the program are approximately \$2,200.

**Duties:** Respiratory Therapy is a health related specialty where Technicians are employed in the treatment, management, control, and care of patients with deficiencies and abnormalities associated with breathing. Typical duties include the therapeutic use of medical gases, air and oxygen administering apparatus, environmental control systems, humidification and aerosols, drugs and medications, ventilatory control, postural drainage, chest physio-therapy and breathing exercises, respiratory rehabilitation, assistance with cardiopulmonary resuscitation, and the maintenance of natural, artificial and mechanical airways. Duties may also include diagnostic testing of pulmonary function.

**Positions:** Job placement has been 100% for graduates of this program for the past three years. Entry-level positions may be found in hospitals, clinics, oxygen equipment rental companies, nursing homes, universities, and colleges.

### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
9305	Technical Math for Health Occupations	5	
8308	Microbiology	3	
9351	Anatomy	4	
4813	Nursing Techniques	2	
8301	Physical Science	3	17
<i>Second Quarter</i>			
9352	Physiology	4	
8307	General Chemistry	3	
4820	Cardiopulmonary Physiology	4	
4812	Respiratory Therapy Science I	6	17
<i>Third Quarter</i>			
9358	Pharmacology	3	
4837	Pulmonary Pathophysiology	4	
4823	Clinical Practicum I	5	
4821	Respiratory Therapy Science II	6	18
<i>Fourth Quarter</i>			
4844	Cardiopulmonary Lab Diagnosis	4	
4833	Clinical Practicum II	8	
4835	Respiratory Therapy Science III	6	18
<i>Fifth Quarter</i>			
9350	Medical Law and Ethics	2	
4845	Seminar	2	
4841	Clinical Practicum III	11	15

## SURGICAL TECHNOLOGY

**Program:** The Surgical Technology Program prepares graduates to scrub and circulate on almost all types of surgical procedures done in hospitals. The College is affiliated with a number of Indianapolis Hospitals; however, the number of clinical slots is limited and is determined by projected community needs.

**Degrees:** The program is one year (4 quarters) and is offered full-time, days only. Graduates are awarded a Technical Certificate and are eligible to take the National Certification Examination and thus become Certified Surgical Technologists (C.S.T.). Students have actual clinical experience each quarter as they work under the supervision of an instructor in a hospital environment.

**Special Requirements:** The program begins in the Fall Quarter. Applicants are urged to apply six months in advance and one year in advance if preparatory classes are needed to fulfill requirements.

- (1) Applicants must be high school graduates or have a GED.
- (2) Two high school semesters of biology or comparable science with a grade of "C" or better are prerequisite.
- (3) A "C" or better English grade average for 4-6 semesters is required.
- (4) Applicants should have a high school GPA of 2.0 (C).
- (5) Reading and math tests are given at Ivy Tech; applicants must achieve an 11th grade level comprehension in reading. The math test is subject to review, but proficiency in basic math is necessary.
- (6) A writing test will also be given; the applicant must have a writing level of 4 on a 1-5 point scale.
- (7) There is an interview by the College and hospital instructors with students who meet minimum requirements. Applicants are notified of their acceptance or rejection two weeks after the interview.

Students in the program must maintain a "C" average in all classes, and a "B" or better grade is required in Clinical Applications II & III. Because of the heavy class and clinical schedule, working while enrolled in the program is not recommended. Surgical attire is required during laboratory time in Surgical Techniques class during the first quarter. Approximately half of the training is in a hospital; arrangements for transportation must be made by the student.

**Duties:** A surgical technologist assists surgeons and anesthesiologists before, during, and after surgery. The surgical technologist helps in patient preparation, scrubs or circulates for surgical procedures, and following surgery, helps transfer patients to the recovery room.

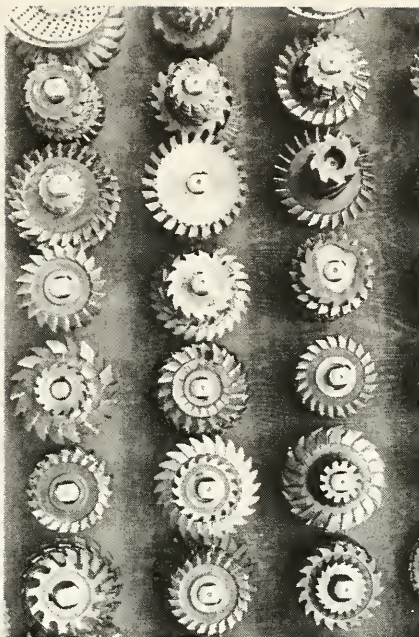
**Positions:** Entry-level positions may be found in hospitals, with private surgeons, and in the armed forces.

### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
4211	Surgical Techniques	9-10
9350	Medical Law and Ethics	2
9349	Anatomy and Physiology	4
8308	Microbiology	3 18-19
<i>Second Quarter</i>		
9349	Anatomy & Physiology	4
4222	Clinical Applications I	8
4221	Surgical Procedures I	5 17
<i>Third Quarter</i>		
9358	Pharmacology*	3
4230	Surgical Procedures II	4
4231	Clinical Applications II	10 17
<i>Fourth Quarter</i>		
3248	Basic Life Support*	3
4242	Surgical Procedures III	4
4240	Clinical Applications III	10 17

\*Sequence in program may vary.





## TRADE & TECHNICAL DIVISION

### ARCHITECTURAL DRAFTING

**Program:** The Architectural Drafting Program trains highly qualified personnel for drafting positions in the building trades. Lab courses involve detailed projects in residential, commercial and institutional structures with emphasis on esthetics, planning, detailing and computer-aided design (CAD).

**Degrees:** The Associate in Applied Science degree is awarded upon successful completion of 104 credit hours. A Technical Certificate is available after the completion of the first four consecutive quarters (62 credit hours). Advanced placement can be granted to students exhibiting competency gained through prior school or work experience.

**Special Requirements:** The person considering drafting as a career should have mechanical inclinations, manual dexterity, creativity, thorough and responsible work habits. The importance of math is evident in the five courses required as part of the related education offerings.

**Duties:** Working for architectural firms, engineering firms and material suppliers, the technician creates working plans, details and schedules for today's highly competitive building industry.

**Positions:** Employment prospects for drafters from 1980-1990 are favorable. The best prospects are for those with Associate Degrees or training in computer-aided drafting. (Occupational Outlook Quarterly, Spring 1982)

#### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
7510	Basic Drafting**	3
7511	Intermediate Drafting**	3
5422	Residential Construction Materials	3
8203	Technical Mathematics I	4
8401	Human Relations	4
<b>**Both courses must be taken concurrently.</b>		
<i>Second Quarter</i>		
7520	Descriptive Geometry	3
7522	Production Drafting	3
5421	Basic Architectural Drafting	3
5473	Rendering	3
8208	Geometry	3
<i>Third Quarter</i>		
5430	Light Construction Presentation	3
5431	Light Construction Layout	3
5433	Light Construction Detail	3
5432	Mechanical and Electrical Equipment	3
8112	Technical Communications	3



<i>Fourth Quarter</i>			
5440	Medium Construction Presentation	3	
5441	Medium Construction Layout	3	
5442	Medium Construction Detail	3	
5452	Estimating	3	
8209	Trigonometry	3	15
<hr/>			
<i>Fifth Quarter</i>			
5485	Medium Construction Structures	3	
5450	Heavy Construction Presentation	3	
5471	Surveying Theory	3	
6420	Intro to Data Process & Computers	3	
8302	Mechanics	3	15
<hr/>			
<i>Sixth Quarter</i>			
5451	Heavy Construction Layout	3	
5453	Heavy Construction Detail	3	
5486	Heavy Construction Structures	3	
5456	Introduction to Computer Aid Design	3	
7552	Strength of Materials	3	15
<hr/>			
<i>Seventh Quarter</i>			
5460	Team Project Presentation*	3	
5461	Team Project Layout*	3	
5462	Team Project Detail*	3	
5454	Interactive Computer Aid Design	3	12
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\*8501 - Field Study may be substituted for 3 - 9 credits of the identified courses provided applicant qualifies.

ASSOCIATE DEGREE - Successful completion of the seven quarter courses. Minimum total credits 104 (G.P.A. of 2.0 Min.)

## AUTO BODY TECHNOLOGY

**Program:** The Auto Body Repair Program provides instruction for initial employment or skill upgrading. The program includes courses in body repair, auto chassis, welding, suspension and alignment, collision damage repair, and auto paint shop practices.

**Degrees:** Upon successful completion of the four quarter program, graduates are awarded a Technical Certificate. The program can be completed in one year. Certification may be acquired through the National Institute of Automotive Excellence; however, this is not required for employment.

**Special Requirements:** Persons entering the program should have some mechanical ability and be in good physical condition. They should also meet minimum requirements in math and English or those required by the College.

A small tool box with assorted mechanical and body tools is required.

**Duties:** An auto body technician is an individual who is trained in restoration of the complete automotive body to its original contour and finish. This includes sheet metal, fiberglass, plastic repair, and interior refinishing.

**Positions:** Entry-level positions may be found in auto body repair shops, auto dealerships, truck and fleet operations, and auto restoration shops.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
5601	Basic Body Repair I	2	
5602	Basic Body Repair II	2	
5626	Auto Sheet Metal Alignment	2	
5609	Basic Body Repair I Practicum*	1	
5615	Basic Body Repair II Practicum*	1	
8064	Weld Practice/ Auto Body I	3	
8076	Weld Practice/ Auto Body II	2	
8112	Technical Communications	3	16
<i>Second Quarter</i>			
5603	Basic Body Repair III	2	
5604	Basic Body Repair IV	2	
5608	Basic Body Repair IV Practicum	1	
5625	Auto Paint Shop Practices I	2	
5627	Auto Paint Shop Practices I Practicum	1	
5639	Fiberglass/ Plastic Repair	2	
5617	Suspension & Alignment (Auto Body) Elective	3	15
<i>Third Quarter</i>			
5611	Collision Damage Repair I	2	
5612	Collision Damage Repair II	2	
5613	Collision Damage Repair I Practicum	1	
5614	Collision Damage Repair II Practicum	1	
5620	Frame & Chassis I	2	
5621	Frame & Chassis II	2	
8201	Applied Math I	4	
	Elective	2	16
<i>Fourth Quarter</i>			
5630	Collision Damage Appraising	2	
5632	Auto Paint Shop Practices II	2	
5636	Auto Paint Refinishing	2	
5638	Glass Installation	2	
8401	Human Relations	4	
	Elective	3	15
*Required Elective			

## AUTOMOTIVE SERVICE

**Program:** Technology in automotive maintenance and service has changed profoundly in the last few years. Engines, electronic ignition, emission controls, power trains, suspensions, and domestic diesel engines reflect the most changes. The Automotive Service Program is designed to give the student entry-level skills in the automotive service profession.

**Degrees:** The Associate in Applied Science degree is awarded after successful completion of the seven quarter program. The Technical Certificate is awarded after successful completion of a minimum of 45 approved credit hours. Students may enroll in individual courses; students can either attempt to test out of some courses or receive advanced placement for courses already mastered through prior training or on-the-job experience.

**Special Requirements:** Students should meet minimum math and communication levels as required by the College. Students are also required to have a minimum number of hand tools. The current total cost of these tools is approximately \$200; however, many students find they already own all or many of the required tools.

**Duties:** Automotive Service Technicians diagnose malfunctions, repair automobile or other motor vehicles and perform preventative maintenance tasks. The student will be trained to perform service in the following areas: chassis and suspension, front end alignment, braking systems, conventional ignition, electronic ignition, fuel and carburetion, tune-up, domestic diesel engine tune-up, starting and charging systems, engine overhaul, manual transmissions, differential and rear axle, accessories and air conditioning.

**Positions:** It is estimated that at least 50,000 new automotive service technicians are needed each year. Potential employers include automobile dealers, independent garage owners, state and federal service departments, leasing companies, and department store automotive service departments. In addition, service of off-the-road vehicles and recreational vehicles offers a technician employment opportunities.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
5812	Automotive Chassis and Suspension*	3	
5814	Automotive Front End Alignment*	3	
5813	Automotive Braking Systems	3	
5817	Automotive Braking Systems Practicum	1	
8112	Technical Communications	3	
8201	Applied Math I	4	17
*Co-Requisite			
<i>Second Quarter</i>			
5823	Basic Electricity	3	
5827	Conventional Ignition Systems	3	
5828	Electronic Ignition Systems	3	
5825	Fuel & Carburetion - Theory & Circuits	3	
5826	Fuel & Carburetion - Overhaul	3	15
<i>Third Quarter</i>			
5832	Starting & Charging Systems - Testing*	3	
5833	Starting & Charging Systems - Overhaul*	3	
5851	Automotive Accessories*	3	
5852	Engine Tune-up**	3	
5853	Engine Tune-up Practicum**	1	
8401	Human Relations	4	17
*Prerequisite: 5823			
**Prerequisite: All 2nd Quarter Courses			
<i>Fourth Quarter</i>			
5821	Engine Theory, Design & Construction	3	
5822	Engine Tools & Equipment	3	
5834	Engine Overhaul	3	
5835	Manual Transmission Overhaul	3	
5836	Engine Overhaul Practicum I	1	
5838	Engine Overhaul Practicum II	1	
5839	Engine Overhaul Practicum III	1	
5840	Engine Overhaul Practicum IV	1	16

<i>Fifth Quarter</i>			
5845	Advanced Tune-up*	3	
5844	Advanced Tune-up Practicum*	1	
5843	Differentials & Rear Axle Overhaul	3	
5847	Air Conditioning - Theory, Service & Comp.	3	
5848	Air Conditioning - Diagnosis & Repair	3	
	Elective	4	17

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\*Prerequisite: All 3rd Quarter Technical Courses

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<i>Sixth Quarter</i>			
5854	Automatic Transmission - Theory & Oper.	3	
5855	Automatic Transmission - In-Car Service	3	
5856	Automatic Transmission - Bench Overhaul I	3	
5857	Automatic Transmission - Bench Overhaul II	3	
5858	Automatic Transmission - Bench Overhaul I Practicum	1	
5873	Automatic Transmission - Bench Overhaul II Practicum	1	
8301	Physical Science	3	17

<i>Seventh Quarter</i>			
5862	Comprehensive Diagnosis & Procedures I*	3	
5863	Comprehensive Diagnosis & Procedures II*	3	
	Elective	6	12

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\*Prerequisite: All Technical courses in curriculum

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The sequence of courses may be changed  
by the college when necessary.

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## ELECTRONICS

**NOTE TO STUDENTS:** The Electronics Technology Program is currently being revised and is subject to change in the near future. Students should ask the Program Chairperson for specific program/course requirements.

**Program:** The Electronics Program is a seven quarter program which includes three quarters of general electronics study and four quarters of specific study in industrial electronics; communications, including radio and television; and digital electronics, including computers.

**Degrees:** The Associate in Applied Science degree is awarded after successful completion of 114 credit hours of required courses. The degree program begins in the Fall and Spring Quarters each year.

**Special Requirements:** Admission requirements for the program are as follows:

- (1) Good high school background in reading, algebra, trigonometry, and science is very helpful as well as a willingness to apply oneself.
- (2) It is advised that anyone possessing a physical handicap consult with an electronics advisor for discussion as to how, if at all, it might affect his/her progress with the program as well as subsequent job opportunities.
- (3) In addition to general fees, lab fees, and books, the student will need to purchase some hand tools.

**Duties:** The Electronics Technician assists the engineer and skilled craftsman in troubleshooting electronic equipment, performing operations and calculations, testing, and reporting.

**Positions:** Electronics technicians have outstanding job opportunities with excellent placement of students with the Associate in Applied Science degree. Entry-level positions such as engineering aide, repair technician, inspector, assembler, sales representative, and many others may be found with electronics manufacturers and service firms, distributors, retailers, government, or other electronics firms.

### QUARTER BY QUARTER CURRICULUM ASSOCIATE DEGREE PROGRAM

COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
6412	D.C. Fundamentals I	3
6414	D.C. Fundamentals II	3
6413	Fabrication	3
8401	Human Relations	4
8203	Technical Mathematics I	4 17
<i>Second Quarter</i>		
6423	A.C. Fundamentals I	3
6425	A.C. Fundamentals II	3
6426	Electronic Drafting	3
6525	Introduction to Test Equipment	3
8209	Trigonometry	3 15
<i>Third Quarter</i>		
6434	Introduction to Active Devices	3
6435	Electronic Circuits I	3
8204	Technical Mathematics II	4
8112	Technical Communications	3
6455	Circuit Analysis	3 16
<i>Fourth Quarter</i>		
6436	AM Radio	3
6438	FM Radio	3
6447	Special Semiconductors	3
6454	Electronic Circuits II	3
6538	Rotating Machines I	3
6539	Rotating Machines II	3 18
<i>Fifth Quarter</i>		
8302	Mechanics	3
6446	Integrated Circuits	3
6445	Monochrome Television	3
6448	Color Television	3
6424	Troubleshooting Techniques	3
6544	Introduction to Industrial Controls	3 18
<i>Sixth Quarter</i>		
6450	Television Troubleshooting	3
6543	Basic Industrial Electronics	3
6562	Digital Principles I	3
6563	Digital Principles II	3
8303	Heat, Light and Sound	3 15
<i>Seventh Quarter</i>		
6420	Intro. To Data Processing and Computers	3
6553	Industrial Electronics I	3
6554	Industrial Electronics II	3
6577	Digital Principles III	3
6578	Digital Applications	3 15

To receive the Associate Degree in Electronics Technology, a student must take and pass all of the courses listed on this page with at least a C (2.0) average.



## HEATING, AIR CONDITIONING AND REFRIGERATION TECHNOLOGY

**Program:** Heating, Air Conditioning and Refrigeration is the fourth fastest growing industry in the United States. Employment opportunities for trained technicians are expected to increase much faster than the average for all occupations through the 1980's.

**Degrees:** The Associate in Applied Science degree program (108 credit hours) is seven quarters in length, providing the student carries the recommended courses/credit hour load. A student has the option to exit the program at a Technical Certificate level (65 credit hours in required courses). The degree program begins in the Fall and Spring Quarters each year.

The courses of study required for the Associate in Applied Science degree will prepare students for the examinations given by the Marion County Board of Heating Examiners. (Two years of field experience are also required before a student can receive a Heating and Air Conditioning, or Refrigeration License.)

**Special Requirements:** Students in the program should have adequate vision and manual dexterity and approximately a 9th grade level in math, reading and comprehension. A student must have a high school diploma or GED in order to receive the Associate degree.

In addition to fees, supplies and books, tools are required for the program. Many students may already have some or all of the required tools; however, if all have to be purchased, currently the cost will range from \$600 to \$800.

**Duties:** Graduates of the Heating, Air Conditioning and Refrigeration Program serve the industry as service and installation technicians in residential, commercial, and industrial applications; they also hold various sales, sales support, and sales engineering positions.

**Positions:** Employers include manufacturers, contractors, building management firms, apartment projects, wholesalers, and government agencies. Many graduates of the program become self-employed.

QUARTER BY QUARTER CURRICULUM (Associate in Applied Science Degree)				
COURSE NUMBER	DESCRIPTION	CREDITS		
<i>First Quarter</i>				
7111	Heating Fundamentals	3*		
7113	Basic Electricity for Air Conditioning	3*		
7114	Basic Mechanics & Shop Techniques	3*		
7123	Air Conditioning & Refrigeration Fund.	3*		
8203	Technical Math I	4	16	
<i>Second Quarter</i>				
7124	Heating Service - Gas & Oil	3*		
7126	Air Cond. & Refrigeration	3*		
7133	Cooling Service Electrical	3*		
7135	Electrical Circuits & Controls	3*		
8208	Geometry	3	15	
<i>Third Quarter</i>				
7125	Motors & Motor Controls	3*		
7127	Heating Service Electric & Hydronic	3*		
7134	Cooling Service Mechanical	3*		
7154	Duct Fabrication & Installation	3*		
0124	Consumer Economics			
	OR			
0153	Micro-Economics	3	15	
<i>Fourth Quarter</i>				
7143	Blueprint Reading	3*		
7144	Commercial Refrigeration	3		
7145	Heat Pump Service	3*		
7146	Cooling Service Advanced	3*		
8066	Introduction to Welding	3*		
8209	Trigonometry	3	18	
<i>Fifth Quarter</i>				
7136	Psychrometrics	3*		
7137	Heat Loss/Gain Calculations	3		
7153	Commercial Refrigeration Advanced	3		
7163	Air Distribution System Design	3		
8302	Mechanics	3	15	
<i>Sixth Quarter</i>				
7155	Specifications & Estimating	3		
7162	Specialized Environmental Systems	3		
7165	Advanced Electrical Controls	3		
7528	Drafting for Heating/Air Conditioning	3		
8112	Technical Communications	3	15	

<i>Seventh Quarter</i>			
7174	Service Organization & Management	3	
7175	Equipment Sales	3	
7176	Applied Design	4	
8401	Human Relations	4	14

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Total credits required for an Associate Degree 108

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*Electives/ Regional Options*

Any T. & T. Course  
applicable to the trade

Any Math course

Any Psychology Course

Any Science Course

Any Economics Course

Any Communications  
Course

Any Business Course

7147	Uniform Mechanical Code	4	
7151	Energy Management	3	
7157	Solar Heating & Cooling	1-15	
7159	Practicum (Lab or Shop)	3	
7510	Basic Drafting	2	
8501	Field Study, Co-op Education	1-15	
5847	Auto Air Cond., Theory, Service, & Comp.	2	
5848	Auto Air Cond., Diagnosis & Repair	2	
7152	Air Balancing	3	
7169	Advanced Electrical Controls II	3	

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\*Technical Certificate Courses: 51 credits

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## INDUSTRIAL DRAFTING TECHNOLOGY

**Program:** The Industrial Drafting Program trains highly qualified personnel for drafting positions in manufacturing industries creating new products and improving existing products for today's fast moving society. Lab courses cover most types of industrial drafting with emphasis on product design, jig and fixture design, and computer-aided design (CAD).

**Degrees:** The Associate in Applied Science degree is awarded to students who successfully complete 107 credit hours. A Technical Certificate (62 credit hours) is available after the completion of the first four consecutive quarters. Advanced placement can be granted to students exhibiting competency gained through prior school or work experience.

**Special Requirements:** The person considering drafting as a career should have mechanical inclinations, manual dexterity, creativity, thorough and responsible work habits. The importance of math is evident in the five courses required as part of the related education offerings.

**Duties:** The industrial drafting technician is needed in liaison work to correlate the efforts of the design engineer, customer representative and manufacturing plant.

**Positions:** Employment prospects for drafters from 1980-1990 are favorable. The best prospects are for those with Associate Degrees or training in computer-aided drafting. (Occupational Outlook Quarterly, Spring 1982) Positions can range from an entry-level detailer on the drawing board to a designer with additional experience and training.

### ASSOCIATE DEGREE QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
7510	Basic Drafting	3**
7511	Intermediate Drafting	3**
7521	Industrial Processes and Systems	3
8203	Technical Mathematics I	4
8401	Human Relations	4 17

**\*\*Both courses must be taken concurrently.**

#### *Second Quarter*

7520	Descriptive Geometry	3	
7522	Production Drafting	3	
5421	Basic Architectural Drafting	3	
7710	Basic Machine Tool	3	
8208	Geometry	3	15

#### *Third Quarter*

7530	Product Drafting I	3	
7532	Tool Drafting	3	
7550	Gear And Cam Drafting	3	
7558	Sheet Metal Drafting	3	
8112	Technical Communications	3	15

#### *Fourth Quarter*

7545	Product Drafting II	3	
7547	Electronics Drafting	3	
7557	Jig and Fixture	3	
7533	Die Drafting	3	
8209	Trigonometry	3	15

**TECHNICAL CERTIFICATE** - Successful completion of the first four quarter courses. Minimum total credits - 62 (G.P.A. 2.0 minimum)

#### *Fifth Quarter*

7531	Mechanisms and Machines	3	
7540	Product Design Drafting	3	
7541	Advanced Tool and Gauge	3	
6420	Intro to Data Process and Computers	3	
8302	Mechanics	3	15

#### *Sixth Quarter*

7543	Technical Illustration	3*	
7560	Machine Design	3*	
7573	Industrial Design Presentation	3	
7552	Strength of Materials	3	
5456	Introduction to Computer Aid Design	3	15

#### *Seventh Quarter*

7548	Geometric Dimension and Tolerancing	3	
7578	Piping Fundamentals	3*	
7574	Industrial Design Detailing	3	
7581	Facilities Planning	3	
5454	Interactive Computer Aid Design	3	15

\*Field Study - 8501 - may be substituted for 3-9 credits of the identified courses provided applicant qualifies.

**ASSOCIATE DEGREE** - Successful completion of the seven quarter courses. Minimum total credits - 107 (G.P.A. of 2.0 minimum)

## INDUSTRIAL EQUIPMENT/AGRICULTURAL EQUIPMENT

**Program:** The Industrial Equipment/Agricultural Equipment Program offers students thorough understanding of servicing, repairing and maintaining all types of agricultural equipment. Students can specialize in either agricultural equipment or industrial equipment after the first three quarters of the six-quarter program.

**Degrees:** Graduates are awarded the Associate in Applied Science degree in Agricultural Equipment upon successful completion of one of the six-quarter programs (92 credit hours).

**Special Requirements:** Students entering the program should be in good physical health, and a farm or industrial equipment background may benefit their progress in the course of study. A 9th grade level proficiency in mathematics is required.

**Duties:** An Agricultural Equipment Technician is trained to sell, service, maintain, and repair agricultural equipment. This technician may also be employed by a retail farm equipment dealership to supply service parts, set up new machinery, recondition trade-in equipment, and act as a customer public relations person. Many technicians return to their home farms to service their own farm machinery. An Industrial Equipment Technician performs tasks similar to those performed by the Agricultural Equipment Technician except he/she works with industrial machinery or in a retail industrial dealership or construction company.

**Positions:** The job potential for graduates of the Agricultural Equipment or Industrial Equipment option is excellent. Program personnel report that generally there are more requests for graduate employees than there are graduates seeking jobs.

### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
5113	Princ. Int. Comp. Engine	3	
5115	Hydraulic Fundamentals	3	
5124	Manual Transmission	3	
5186	Welding Prac Ag Equipment	3	
8401	Human Relations	4	16
<i>Second Quarter</i>			
5114	Dir Current Fundamentals	3	
5116	Tractor Engines	3	
5125	Open Center Hyd Systems	3	
5142	Lawn & Garden Equipment	3	
8112	Tech Communications	3	15
<i>Third Quarter</i>			
5126	Closed Center Hydra Systems	3	
5127	Hydra Assist Trans	3	
5847	AC Theory, Service	3	
5848	AC Diag, Repair	3	
8113	Oral Communications	4	16
<i>Fourth Quarter</i>			
5123	Diesel Engine I	3	
5134	Parts Dept Mgt	3	
5154	Farm Machinery I	2	
8201	Applied Math	4	
	Electives (min)	3	15
<i>Fifth Quarter</i>			
5132	Diesel Engine II	3	
5133	Environmental Control	4	
5137	Serv Dept Mgt	3	
5145	Farm Machinery II	2	
	Electives (min)	3	15
<i>Sixth Quarter</i>			
5135	Diesel Engine III	3	
5146	Fuels, Lubes & Coolants	3	
5164	Farm Machinery III	2	
	Electives (min)	7	15
Total credits for AAS:		92	

NOTE: the sequence of courses may vary, but all required courses will be offered within the six quarters.

## INDUSTRIAL MAINTENANCE - EQUIPMENT OPTION

**Program:** The Equipment Option of the Industrial Maintenance Program is designed to train graduates in the skills necessary to maintain and repair equipment primarily in industrial firms. The goal of the program is to provide the individual with saleable skills or to upgrade his/her existing skills. Machine tool, hydraulics, electrical wiring, equipment electrical/electronic circuits, drafting and welding are studied as they are related to equipment repair and maintenance.

**Degrees:** A student may earn the Associate in Applied Science degree (105 credit hours) in seven quarters providing he/she carries the recommended courses and credit hour load. A student may exit the program with a Technical Certificate upon completion of 61 to 104 credit hours in required courses. The program begins in the Fall and Spring Quarters.

**Special Requirements:** Students entering the program should have adequate vision, manual dexterity, and an approximate 9th grade level in math, reading and comprehension. In addition to fees, books, and supplies, the student is required to furnish his/her own tools; total current tool costs are approximately \$425.

**Duties:** Graduates of the Equipment Option of the Industrial Maintenance Program serve in various capacities in manufacturing firms, factories, and service oriented industries. Some are self-employed.

**Positions:** Employment opportunities for persons trained in any service oriented trade are expected to increase much faster than the average for all occupations through the 1980's.

### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS
<i>First Quarter</i>		
7710	Basic Machine Tool Intro	3*
7711	Basic Machining Fundamentals	3*
6014	Electrical Fundamentals	3*
7341	Basic Hydraulic and Pneumatic Princ.	3*
8203	Technical Math I	4* 16

<i>Second Quarter</i>			
5125	Open Center Hydraulic Systems	3*	
6015	Residential Wiring	3*	
7712	Machining Fundamentals	3*	
7720	Machine Tool Processing	3*	
7721	Machine Tool Set-up and Operations	3*	15
<i>Third Quarter</i>			
5126	Closed Center Hydraulic Systems	3*	
6412	D.C. Fundamentals I	3	
6414	D.C. Fundamentals II	3	
7731	Basic Print Reading	3*	
9413	Building Trades Blueprint Reading	3	15
<i>Fourth Quarter</i>			
6423	A.C. Fundamentals I	3	
6425	A.C. Fundamentals II	3	
8001	Gas Welding I	3*	
8010	Arc Welding I	3*	
8209	Trigonometry	3*	15
<i>Fifth Quarter</i>			
7510	Basic Drafting	3	
7511	Intermediate Drafting	3	
8112	Technical Communications	3*	
8401	Human Relations Elective	4 3	16
<i>Sixth Quarter</i>			
6031	Electrical Commercial Wiring	3*	
6538	Rotating Machines I	3	
6539	Rotating Machines II	3	
8208	Geometry Elective	3* 4	16
<i>Seventh Quarter</i>			
6020	Electrical Blueprints	3	
7730	Advanced Machine Tool Processing	3*	
7733	Adv. Machine Tool Set-up and Operations	3	
8302	Mechanics	3*	12
<i>Electives (Regional Options)</i>			
Any Trade or Technical Course			
Any Business Division Course			
Any Communication Course			
Any Social Science Course			
Any Math Course			
Any Science Course			
8501	Field Study/Coop Ed.		

\*Courses required for Technical Certificate (61 credit hours). Quarter sequence of Technical Certificate courses will vary.

\*\*Associate degree course sequence may vary. Night course offerings may vary from the suggested day curriculum.



## INDUSTRIAL MAINTENANCE - FACILITY OPTION

**Program:** The Facility Option of the Industrial Maintenance Program is designed to train graduates in the skills necessary for maintenance and repair of building sites. Carpentry, electrical wiring, plumbing, heating and air conditioning, and welding are studied as they are related to facility repair and maintenance.

**Degrees:** A student may earn the Associate in Applied Science degree (105 credit hours) in seven quarters providing he/she carries the recommended courses and credit hour load. A student may exit the program with a Technical Certificate upon completion of 61 to 104 credit hours in required courses. The program begins in the Fall and Spring Quarters.

**Special Requirements:** Students entering the program should have adequate vision, manual dexterity, and an approximate 9th grade level in math, reading and comprehension. In addition to fees, books, and supplies, students are required to furnish their own tools; current total tool costs are approximately \$600.

**Duties:** Graduates serve in various capacities for building management firms, school corporations, hotels, motels, apartment complexes, contractors, service oriented companies, and factories. Some are self-employed.

**Positions:** Employment opportunities for persons trained in any service oriented trade are expected to increase much faster than the average for all occupations through the 1980's.

### QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS
6014	<i>First Quarter</i> Electric Wiring Fundamentals	3
6001	Carpentry Fundamentals	3*
6002	Construction Tools and Skills	3*
9413	Building Trades Blueprint Reading I	3*
8203	Technical Math I	4* 16

6015	<i>Second Quarter</i> Residential Wiring	3*
6003	Construction Materials	3
6011	Floor and Wall Layout and Construction	3*
6024	Plumbing Fundamentals	3*
8208	Geometry	3 15
7111	<i>Third Quarter</i> Heating Fundamentals	3*
7113	Basic Electricity for A/C	3*
7123	A/C and Refrigeration Fundamentals	3*
6036	Masonry and Concrete Fundamentals	3*
6022	Plumbing Design and Installation I	3 15
7124	<i>Fourth Quarter</i> Heating Service Gas and Oil	3*
7126	Air Conditioning and Refrigeration	3*
7133	Cooling Service Electrical	3*
7135	Electrical Circuits and Controls	3
8209	Trigonometry	3 15
7125	<i>Fifth Quarter</i> Motors and Motor Control	3*
7127	Heating Service Electric and Hydronic	3
7134	Cooling Service Mechanical	3
7154	Duct Fabrication and Installation	3
8112	Technical Communications	3* 15
6025	<i>Sixth Quarter</i> Plumbing Blueprint	3*
6026	Advanced Skills in Masonry	3
6031	Electrical Commercial Wiring	3*
8001	Gas Welding I	3*
8010	Arc Welding I	3* 15
6020	<i>Seventh Quarter</i> Electrical Blueprint	3
8401	Human Relations	4
	Elective	3
	Elective	4 14
	Electives (Regional Option)	
	Any Trade or Technical Course	
	Any Business Division Course	
	Any Communication Course	
	Any Social Science Course	
	Any Math Course	
	Any Science Course	
8501	Field Study/Coop Ed	

\*Courses required for Technical Certificate (61 credit hours). Quarter sequence of Technical Certificate courses will vary.

Associate degree course sequence may vary.

## MACHINE TOOL TECHNOLOGY

**Program:** The Machine Tool Program enables the student who aspires to a highly skilled career in the machine tool industry to receive a broad education which will give him/her entry-level skills in the many facets of this operation. The student experiences working with all the basic machine tools, plus machine rotary tables, grinding wheel form dressers, taper attachments, and related inspection equipment and techniques. Specialty procedures such as Electrical Discharge Machining and Computerized Numerical Control are included in the curriculum.

**Degrees:** Graduates are awarded the Associate in Applied Science degree upon satisfactory completion of seven quarters (108 credits) or a Technical Certificate for four quarters of study (62 credits). The program begins in the Fall and Spring Quarters.

**Special Requirements:** Applicants to the program ought to have mechanical aptitude and related math skills. Tools currently totaling approximately \$200 must be purchased during the course of study.

**Apprenticeship:** Independent from the Associate degree or Technical Certificate programs, the Tool & Die Apprenticeship Related Training of 180 hours was developed to satisfy the related training required by Tool and Diemaker Apprentices. The text material has been developed by the National Tool, Die and Precision Machinery Association and is taught by Journeyman Toolmakers.

**Positions:** Graduates of this program find employment as Tool and Die Maker Apprentices, CNC and N/C Operator-Programmer Trainees, Specialized Machine Operators, Quality Control Trainees, and other related machine tool industry positions. Courses in supervision, communications and human relations form a foundation for potential supervision and management positions.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
7710	Basic Machine Tool Introduction	3*	16
7711	Basic Machining Fundamentals	3*	
7731	Basic Print Reading	3*	
8203	Technical Mathematics	4*	
7741	Heat/Treat & Metallurgy	3*	
<i>Second Quarter</i>			
7529	Introduction to Drafting	3*	15
7712	Machining Fundamentals	3*	
7720	Machine Tool Processing	3*	
7721	Machine Tool Set-Up & Operation	3*	
8208	Geometry	3	
<i>Third Quarter</i>			
7730	Advanced Machine Tool Processing	3*	15
7733	Advanced Machine Tool Set-Up & Operations	3*	
8066	Introduction to Welding	3*	
8209	Trigonometry	3	
7744	Machinery Handbook	3	
<i>Fourth Quarter</i>			
7761	Plastic Molding Fundamentals	3*	15
7740	Specialized Machine Tool Theory	3*	
7742	Specialized Machine Tool Appl. I	3*	
7743	Specialized Machine Tool Appl. II	3*	
7762	Precision Measurement	3	
<i>Fifth Quarter</i>			
7758	N/C & Auto Processing	3	16
7752	Mechanism Design I	3	
7753	Mechanism Design II	3	
8112	Technical Communications	3*	
8401	Human Relations	4*	
<i>Sixth Quarter</i>			
7750	Tool Fabrication I	3	16
7751	Tool Fabrication II	3	
7756	Tool Fabrication III	4	
0940	Quality Control	3	
7113	Electrical Circuits	3*	
<i>Seventh Quarter</i>			
0153	Micro Economics	3	12
0931	Motion & Time Study	3	
7341	Hydraulics & Pneumatic Fundamentals	3*	
0921	Principles of Industrial Safety	3	
*Courses for Technical Certificate			

## POLLUTION TREATMENT TECHNOLOGY

**Program:** There is great concern over the quality of the water, air and land that are essential to the sustenance of human life. Only trained individuals can stop the degradation of the environment that will surely occur if too little is done to prevent it.

**Degrees:** The Associate in Applied Science degree is awarded after completion of six quarters of required courses.

Of special interest to those already working in the field of wastewater treatment are the Plant Operations courses. These courses assist in preparation for The State Board of Health certification tests. The Plant Operations courses are usually offered in the Fall and Spring Quarters.

**Special Requirements:** None

**Duties:** A pollution treatment technician assists researchers, public health scientists, water plant operators and wastewater plant operators in the solution of air, water, solid waste, hazardous material and wastewater treatment problems.

**Positions:** Positions are available in plant development and operations or as an operator of a water purification plant or wastewater facility or as a member of a health team.

### TYPICAL ASSOCIATE DEGREE PROGRAM QUARTER BY QUARTER CURRICULUM

COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
7913	Introduction to Environmental Controls	4	
8110	Communications	4	
8203	Technical Math I	4	
8301	Physical Science	3	15
<i>Second Quarter</i>			
7943	Water Supply and Treatment	4	
8113	Oral Communications	4	
8204	Technical Math II	4	
8307	General Chemistry	3	15
<i>Third Quarter</i>			
7915	Applied Chemistry I	3	
7934	Basic Hydraulics	4	
7945	Equipment and Maintenance I	3	
	Elective	4	14
<i>Fourth Quarter</i>			
7916	Environmental Seminar	1	
7954	Plant Operations I - Municipal	4	
7960	Air Pollution Control I	4	
8308	General Microbiology	3	
	Elective	4	16
<i>Fifth Quarter</i>			
7946	Applied Research I	2	
7951	Reporting and Purchasing	2	
7952	Management and Supervision Proced.	4	
7957	Community Sanitation	3	
	Elective	4	15
<i>Sixth Quarter</i>			
7958	Equipment and Maintenance II	3	
7961	Plant Operations II - Municipal	3	
7963	Plant Operations III - Industrial	3	
7972	Environmental Administration	4	
	Elective	4	17

NOTE: The sequence of courses may vary.

## WELDING

**Program:** Welding is the most common method of permanently connecting metal parts by melting them together. The principal duty of the welder is to control the melting by directing heat from either an electric arc or gas welding torch and to add filler metal as needed.

**Degrees:** Upon successful completion of the program (66 credit hours), graduates are awarded a Technical Certificate. The program can be completed in 4-6 quarters. Students may also elect to receive an Occupational Certificate or to take individual courses which contribute to upgrading within an existing job or training for one particular job.

**Special Requirements:** Students who enroll in the Welding Program should have good vision, be in good physical condition, and have adequate manual dexterity. A certain efficiency in mathematics is required. Developmental classes in math, as well as other areas, are available at the College.

In addition to other College fees, students in the Technical Certificate program currently will have tool costs totaling approximately \$200; students completing requirements for an Occupational Certificate will have tool costs of approximately \$160.

**Duties:** Graduates of the Welding Program should have acquired saleable skills which allow them to perform in the Following areas: be able to produce quality welds using the Shielded Metal Arc, Gas Tungsten Arc, and the Gas Metal Arc welding processes; be able to interpret welding blueprints and weld symbols; be able to identify ferrous and non-ferrous metals; be able to use communicative skills, reference books and data charts; and be able to work well with others having developed the proper attitude toward work, fellow employees, and supervisors.

**Positions:** Job opportunities may be available in fabrication and building trades, welding service shops, utility companies, metal manufacturing firms, electric motor manufacturers, and almost all manufacturers who use metal in their products.

QUARTER BY QUARTER CURRICULUM			
COURSE NUMBER	DESCRIPTION	CREDITS	
<i>First Quarter</i>			
8022	Electrical Fundamentals of Welding	3	
8201	Applied Mathematics I	4	
8006	Basic Metallurgy	3	
8112	Technical Communications	3	
8009	Oxy-acetylene Gas Welding and Cutting	5*	18
<i>Second Quarter</i>			
8090	Shielded Metal Arc Welding I	5*	
8013	Blue Print Interpretation	3*	
8202	Applied Mathematics II	4	
8035	Welding Fabrication I	5	17
<i>Third Quarter</i>			
8095	Shielded Metal Arc Welding II	5*	
8024	Welding Blue Print Interpretation	3*	
8401	Human Relations	4	
8036	Welding Fabrication II	5	17
<i>Fourth Quarter</i>			
8096	Gas Metal Arc Welding (MIG) Welding	5	
8097	Gas Tungsten Arc Welding (TIG) Welding	5*	
8098	Welding Certification or Regionally Selected Welding Course	4	14
*Occupational Certificate (26 credits)			



# COURSE DESCRIPTIONS

## 0110 Accounting Principles I 4

Introduces the fundamental principles, techniques and tools of accounting, presenting the mechanics of accounting, collecting, summarizing, analyzing, and reporting information about services and mercantile enterprises.

## 0111 Introduction to Taxes and Accounting 3

This course is designed for people who have just started business or are planning on starting a business to have some familiarization with accounting and with the different tax forms that they will likely encounter. It will not teach the student how to do accounting or prepare tax forms, but it will show them how accounting is beneficial and how to use the information the accounting gives them.

## 0112 Accounting for Non-Majors 4

Structured for non-accounting majors, the course requires students to analyze financial statements to determine levels of efficiency, company performance, and ratio and trend analysis, in addition to budgeting and capital expenditures and price level effects on accounting.

## 0120 Accounting Principles II 4

*Prerequisite: 0110 or permission of program advisor*  
Studies accounting, in addition to sales procedures and valuation of receivables, inventories and fixed assets.

## 0123 Business Law-Professional Secretarial Examination 4

Introduces the study of business law to prepare candidates for the Professional Secretarial Examination. Includes contracts and the operation of governmental controls of business, real and personal property, legal instruments, court procedures, sales, product liability and related statutes.

## 0124 Consumer Economics 3

Includes the study and review of the cost of living and price levels, factors affecting consumer choices, buying practices, management of personal and family finances, the role of government in consumer protection and current consumer problems.

## 0125 Business Law I 4

Includes the study of the nature and sources of business law, a description of the judicial system and the nature of torts and crimes for which the law provides punishment, with emphasis placed on legal situations encountered in the performance of contracts and breach of contracts, the creation of an agency, sales and negotiable instruments.

## 0130 Accounting Principles III 4

*Prerequisite: 0120 or permission of program advisor*  
Further develops the skill and knowledge of accounting: journal and statement presentation of corporate capital stock, break-even analysis, and changes in financial position.

## 0131 Accounting III-Practicum 1

An introduction to the fundamental principles of accounting as applied to various types of business. The art of analysis, recording, summarizing and financial reporting is emphasized.

## 0135 Accounting & Financial Reporting for Churches 3

Covers basic principles and processes required for a church financial record and reporting system. Focus is on accounting principles, fund accounting, recording fixed assets and depreciation, investments, budgeting and reporting systems.

## 0136 Introduction to Accounting for Government and Non-Profit Entities 3

An introduction to the basic principles of fund accounting (governmental and non-profit), accounting for budgets and compliance therewith, and the basic types of funds, categories and groups of accounts.

## 0138 Computer Augmented Accounting 4

This course involves the processing of financial data for a business on an electronic computer. Through lectures and laboratory sessions the student will learn how computers receive, handle, store, retrieve and print vast amounts of data at an astonishing speed. The student will be able to use the computer in the processing of financial data.

## 0140 Intermediate Accounting I 4

*Prerequisite: 0130 or permission of program advisor*  
Includes intermediate accounting principles related to the form and content of the income statement and the balance sheet, cash receipts, cash disbursements, cash reconciliations, accounts receivable, bad debts, short-term financing and concepts of cost of market inventory valuation.

## 0141 Individual Income Tax 4

Presents accounting procedure and problems connected with Federal Income Tax Law and state laws for individuals, estates, and trusts.

## 0142 Job Order Cost Accounting 4

*Prerequisite: 0120*  
Studies job-order cost accounting procedures, manufacturing overhead control, departmentalization, material control, labor control and report forms.

## 0143 Business Law II 3

Emphasis on such including bailments, secured transactions, partnerships and corporations, property, wills and trusts, insurance, suretyship, guaranty and bankruptcy.

## 0150 Intermediate Accounting II 4

*Prerequisite: 0130 or permission of program advisor*  
Considers intermediate and advanced accounting principles dealing with corporations, temporary investments, long-term investments, special bond transactions, amortization, revaluation of plant and equipment, retirement of plant and equipment, repairs and maintenance, depreciations, natural resources and intangible assets.

## 0151 Process Cost Accounting 4

*Prerequisite: 0142 or permission of program advisor*  
Studies process cost accounting, standard cost procedures, estimating and controlling costs through use of budget and profit analysis.

## 0152 Business Income Tax 4

*Prerequisite: 0120 or permission of program advisor*  
Studies accounting procedure and problems connected with Federal Income Tax Law and state laws for corporations, partnerships, and proprietorships.

## 0153 Microeconomics 3

Includes analysis of basic economic principles of supply and demand as they affect individual consumer and producer; determination of price and output; allocation of scarce resources and distribution and income.

## 0154 Macroeconomics 3

Includes analysis of national income accounting through study of GNP and components; as well as the operation of the monetary and banking system and a survey of international economic problems.

## 0155 Managerial Accounting 3

*Prerequisite: 0130 or permission of program advisor*  
Provides understanding of the relationship of accounting records to management decision making, with topics including internal accounting records, the role of data processing and quantitative business analysis.

## 1056 Accounting Laboratory 1-6

Presents a series of planned accounting learning problems and activities designed to accompany the major concepts and therefore included in accounting technology courses.

## 0157 Payroll Accounting 4

Presents the accounting aspects as practiced in small to medium-sized firms as well as the larger corporations.

## 0160 Intermediate Accounting III 4

*Prerequisite: 0130 or permission of program advisor*  
Deals with stockholder's equity, corporate earnings, corporate dividends, statement of change in financial position and financial statement analysis.

## 0161 Review Course for Accreditation Council for Accountancy Examination 4

Prepares a candidate to take the Accreditation Council for Accountancy Examination in accounting. The course will review areas of both financial and management accounting that most frequently appeared on the past examination. The course will review most intermediate accounting topics.

## 0162 Auditing 3

*Prerequisite: 0130 or permission of program advisor*  
Studies public accounting organization and operation, including internal control, internal auditing, verification of the balance sheet and operating accounts, and the auditor's report of opinion.

## 0165 Budgeting 3

*Prerequisite: 0120 or permission of program advisor*  
Presents procedures in the preparation and use of business budgets, with particular emphasis as aids in coordinating and directing business operations.

## 0166 Introduction to Management 3

Studies the vital role of management in organizations of various sizes, examining the interrelationships among various departmental functions and establishment of lines of authority and responsibility; treats managers' duties relating to communications, motivation and delegation of authority.

## 0167 Seminar in Accounting 1

Allows the accounting student an opportunity to pursue specific areas of interest at a more advanced level in accounting.

## 0179 Review Course: Accounting Practitioner's Exam-Theory 4

The course is offered to prepare individual candidates for the Indiana State Board of Accountancy Practitioner's Examination. The examination consists of the Theory and Practice sections of the Uniform Certified Public Accountants Examination.



**0180 Review Course: Accounting Practitioner's Exam-Practice 4**

The course if offered to advanced students preparing to take the Indiana State Board of Accountancy Accounting Practitioner's Examination.

**0190 Accounting Clerical Procedures 2-8**

Prepares the student for specific jobs by means of job training and office simulation, covering in depth basic skills and duties for eight office jobs: Purchase Order Clerk, Sales Order Clerk, Inventory Clerk, Accounts Payable Clerk, Payroll Clerk and Cash Payments Clerk. Credits do not apply to Accounting Technology A.A.S. degree.

**03 Office Operation Management**

**0320 Management Principles 4**

The functions and work of managers are described, including management of activities and personnel to best achieve goals. Focus is placed on basic principles for guidance in management work applications.

**0321 Office Administration 4**

The broad areas of administrative office services and management are covered, including office organization, office site location, office layout and environment, records management, system controls, and office communications services and devices.

**0322 Personnel Administration 4**

The activities of the personnel administrator are covered with focus on employer employee relations, job analysis, job evaluation, salary administration, personnel selection, performance appraisal, and supervision.

**0328 Laws Applied to Business 3-4**

The various sources of law within a business environment are described, with focus on contracts, the Uniform Commercial Code and the Forms of business organization.

**05 Computer Programming**

**0510 Fundamentals of Data Processing 5**

Provides general introduction to data processing and programming, with emphasis on electronic data processing, includes development of data processing from manual methods through electromechanical to electronic, role of data processing in an organization, data processing applications, computer hardware, internal data representation, stored program concepts, programming systems, introduction to programming, operations research and data processing as a profession.

**0511 Fundamentals of Programming 5**

Provides basic introduction to computer programming, including basic concepts, procedures and language.

**0520 COBOL Programming Fundamentals 5**

Provides working knowledge of programming language COBOL and application to business data processing; student gains proficiency in solving basic business problems with COBOL language.

**0521 Practical Computer Operations 5**

Teaches actual computer operations and proficiency in handling and setting up complex disk and tape file runs. Student learns to run book and message control functions and to read job descriptions and flow charts. Other topics include: CRT usage, Job Control Language and CICS.

**0522 Problem Solving Fundamentals 3**

Familiarizes student with necessary techniques for efficient solution of computer programming logic problems, utilizing logic examples and exercises to develop confidence and ability to solve programming problems.

**0530 Advanced COBOL Programming 5**

Continues COBOL Programming (0520) with emphasis on complex file handling techniques and use of advanced COBOL extensions. Develops higher level of COBOL proficiency, working knowledge of advanced features and techniques through laboratory experience.

**0531 Operating Systems 5**

Studies computer operating systems, purposes, structure and various functions, providing general understanding of how comprehensive sets of language translators and service programs operating under supervisory coordination of integrated control program form total operating system of a computer.

**0533 Introduction to Microcomputers 2**

Provides an introduction to the BASIC programming language for members of the small business community. Covers BASIC programming concepts or micro- and minicomputers, various components of a computer system, common input/output devices, software dealing with commonly used programs for business operating systems.

**0540 Systems Analysis and Design 4**

Studies functions and techniques of systems analysis, design and development, including science analysis, system flow charting, data collection techniques, file design and management determination of processing and equipment requirements. Course stresses communications between user and data processing department, plus reporting methods; case studies analyze problems that may be encountered and their possible solutions.

**0541 COBOL Programming III 5**

This course will familiarize the student with very advanced concepts in COBOL programming such as programming with direct-access devices and using the COBOL SORT feature. Other topics will be included from the text on structured programming, documentation and further exposure to job control language.

**0551 Business Programming Applications 5**

Studies advanced business programming applications with topics relating to distribution, manufacturing, banking and insurance corporations; course supports applications including billing, accounts receivable, sales analysis, payroll, inventory and cost through brief sketch of manual methods and detailed discussion in terms of computer systems, plus exercises in programming.

**0560 Data Communications 4**

Develops familiarity with modern data communications techniques as applied to data processing; teaches vocabulary and techniques common to remote processing, time sharing, data transmission, etc.

**0568 BASIC Language Programming 4**

The recent popularity of micro and minicomputers has led to a significant increase in the use of the BASIC Language. The course assumes no previous background in either computers or programming. Topics include terminology, common input/output devices, computer software, flowcharting, rules of BASIC language arithmetic and string operations, input and output operations, program control statements and programming debugging and testing techniques.

**0569 BASIC Assembly for Microprocessors 4**

Introduces BASIC language microcomputers including reading and writing programs.

**0570 Assembler Language Fundamentals 5**

Familiarizes student with machine-oriented, low level programming language (language taught depends on type machine access, concentrates on instruction set used or commercial application); laboratory includes coding, debugging and testing of assembler language programs.

**0571 Survey of Business Data Processing (Non-Majors) 3**

Provides supervisory and management level student with understanding of scope and significance of data processing, including punched card unit record equipment, electronic data processing equipment and basic computer concepts.

**0573 RPG II Programming Fundamentals 5**

Covers use of compiler language RPG (Report Program Generator) as means of solving business problems including areas of multiple input and/or output, use of business mathematics in solution to business and other problems, instills productivity with RPG as compiler language.

**0574 PL/I Programming I 5**

This course will familiarize the student with the PL/I programming language, its capabilities and limitations. The student will learn to use PL/I to solve a variety of programming problems. Laboratory will include coding, debugging and testing of PL/I programs.

**0576 Advanced Assembler Language 5**

Continues Assembler Language Fundamentals (0570) with emphasis on disk programming techniques.

**0579 Advanced RPG/II Programming 5**  
A continuation of RPGII Programming Fundamentals (0573).

**07 Hotel-Motel Management/ Culinary Arts**

**0711 Introduction to Hospitality 4**

Traces growth and development of the lodging industry from early inns to modern high rise and commercial hotels and highway motels, stressing opportunities and future trends in the industry. Also reviews organization and nature of the business, including sales promotion, guest relations, guest room facilities, space utilization, food and beverage facilities, accounting records, financial considerations, as well as administrative control.

**0712 Front Office Procedures 4**

Introduces front office principles required in today's lodging operations and presents practical problems to enhance the learner's knowledge of front office operations. Develops areas of human and public relations responsibilities of the front office, salesmanship, cashier's charges posting machines and the night audit.

**0718 Housekeeping Techniques 2**

The student will learn the basic tools and equipment required in institutional housekeeping; knowledge of the accepted basic cleaning techniques.

- 0722 Apartment Management and Leasing** 3  
Emphasizes responsibilities of both landlord and tenant in apartment, townhouse and permanent rental properties and condominiums. Includes both small and large properties; emphasizes methods of convention sales.
- 0723 Convention Management** 3  
Examines cooperative relationship between successful hotel and motel property sales in small and large properties examining business and maintenance details and role of different personnel in each setting.
- 0724 Financial Management and Control** 4  
Studies special application of accounting principles to the hospitality industry, including methods for keeping track of the business for creditors, owners, and the government; payroll control with special emphasis on those tax laws which apply only to this industry; expense control and other ways to achieve profit-making management.
- 0725 Institutional Management** 3  
Studies management problems unique to institutions—boarding schools, professional sport training camps, summer camps, hospitals, extended care facilities, nursing homes, retirement facilities, mental health facilities, prisons—in which students develop an awareness that basic concepts in the lodging industry are the same. Guest lectures and field trips to the institutions highlight this study.
- 0726 Property Management** 3  
Covers all phases of property management, emphasizing first impression, staffing, training, capital investments, cost analysis, rentals and renovation.
- 0727 Tourism** 3  
Provides comprehensive study of tourism principles, practices and philosophies, offering practical and realistic education in the business of tourism; illustrates how and why various components of tourism integrate with other segments of the industry.
- 0728 Hotel-Motel Seminar** 3  
Individual research project in which student prepares in-depth report of a special problem or topic in the hospitality industry.
- 0729 Restaurant Operations** 4  
Gives the student an overview of restaurant operations through hands-on experience in a specialty restaurant setting.
- 0731 Basic Cooking Methods I** 4  
This is the first in a series of courses in food production. The student will become knowledgeable in 7 of the 14 basic forms of food production.
- 0732 Fish and Seafood Preparation** 4  
Explains and demonstrates the methods of preparation of hot and cold fish, crustaceans, shellfish and mollusks. The course uses baking, poaching, braising, sauteing, deep fat frying, broiling, grilling and gratinating as cooking methods.
- 0733 Food & Beverage Management & Service** 4  
Provides basic understanding of principles of food production and service management, reviewing sanitation; menu planning; controls of cost, labor, and purchasing; storage and merchandising of food and beverage; also discusses problems of labor shortages, convenience foods and changes in consumer tastes.
- 0737 Meat Preparation** 4  
Explains and demonstrates the basic methods of preparation for beef, veal, pork, lamb, poultry and game; uses sauteing, broiling, grilling, stewing, simmering, poaching, boiling, and braising as cooking methods.
- 0738 Meat II** 4  
Focuses on meat identification according to the National Association of Meat Purveyors. Demonstrations will be held to show the cutting of carcasses primal cuts and the breakdown of beef, lamb and pork.
- 0739 National Dishes** 4  
This course teaches the student to apply basic cooking methods and forms of preparation to national dishes. It features preparation of Swiss, French, German, English, American, Italian, Austrian and other fine cuisine.
- 0741 Internship** 6  
Students work for approximately eleven weeks in a commercial food service establishment approved by Ivy Tech. This experience will enable the student to gain a different perspective on the responsibilities of the cook and chef. Also, students develop speed and skills in working under pressure in the real life situations.
- 0742 Food & Beverage Purchasing and Control** 4  
Studies in detail major groups of food purchased by quantity buyer, including fresh fruits and vegetables, processed fruits and vegetables, dairy products, cereals and cereal products, beverages, poultry and eggs, fish and shell fish, meats and alcoholic beverages; outlines essentials of effective food and beverage control, while establishing system for determining sale values for food and beverages.
- 0743 Basic Cooking Methods II** 4  
Second in a series of courses in food production. Student will gain proficiency in the 14 basic methods of food preparation.
- 0744 Sanitation** 4  
Details fundamentals of sanitation for food service and general cleaning practice, environmental sanitation and scientific principles underlying good sanitation practices; also includes personal hygiene and importance of sanitation from economic, legal and moral point of view.
- 0747 Buffet Catering** 4  
Students progress to advanced instruction in cold food preparation and presentation techniques. Charcuterie, specialty canapes, hors d'oeuvres, appetizers, pates, galantines, chaud-froids, terrines, tallow and ice carving, aspics, mousses, cold sauces, vegetable carvings, and food decoration are all demonstrated. Food materials' utilization, buffet planning, layout, equipment, zoning and services are covered as is a practical approach to decorating platters for industrial and classical buffets. Students plan, prepare, present and serve a cold buffet.
- 0749 Advanced Baking: Blown and Pulled Sugar** 4  
In order to create decorative and unique table setting, culinarians should be able to blow and pull sugar. This is the basic course for learning the fundamental techniques of sugar work.
- 0752 Sales Promotion** 4  
Demonstrates how to develop a marketing plan for any size operation and shows how to tie all the departments of a hotel operation into a coordinated team; emphasizes organization and functioning of sales department, sales tools, techniques, advertising, and types of markets.
- 0753 Hotel-Motel Law** 3  
Creates an awareness of responsibilities and rights which the law imposes upon and grants to the innkeeper and illustrates the consequences caused by failure in those responsibilities; also discusses attitude of the courts toward the innkeeper involved in litigation.
- 0760 Hotel-Motel Maintenance I** 3  
Examines organization of maintenance and engineering department; discusses plumbing, heating, ventilation, refrigeration, air conditioning, electrical systems, vertical transportation, structural maintenance, painting, landscaping, contracts, communication, acoustics, fire protection and maintenance of kitchen equipment.
- 0762 Supervisory Housekeeping** 4  
Provides introduction to fundamentals of housekeeping management, stressing employee training, record keeping, health and safety, cost control and executive housekeeper responsibilities.
- 0763 Hotel-Motel Maintenance II** 3  
Studies the field of maintenance and engineering on an advanced level going beyond the substantive area covered in Maintenance I; provides technical information to establish effective preventive programs as well as maintenance procedures.
- 08 Quality Control**  
Courses 0875, 0876, 0879, and 0880 are offered through the American Society for Quality Control. Ivy Tech awards credit for successful completion of ASQC courses.
- 09 Industrial Management/Quality Control**  
**0901 Quality Control Concepts and Techniques I** 4  
Designed to present the total quality function in industry. The emphasis of this course is on the latest quality control concepts in response to modern manufacturing requirements.
- 0902 Quality Control Concepts and Techniques** 4  
A continuation of Quality Control Concepts and Techniques I (0901). The emphasis of this course is on the latest quality control techniques with regard to current technological developments.
- 0903 Quality Control Engineering Principles and Techniques** 4  
This course presents the latest principles and techniques of quality engineering for the management, engineering, economics, production and assurance of quality at the hardware, processing and systems levels. Particular emphasis is placed on the fundamentals of quality assurance and process control for effective and economical control of product and process quality.
- 0904 Statistical Concepts and Techniques** 4  
Presents a wide variety of topics involving quality control statistical applications, including frequency distribution, probability theory and applications, and sampling techniques.
- 0905 Quality Control Engineering Theory and Applications** 4  
Presents the latest theory and applications of quality engineering for assurance and verification of process and product quality at the hardware, processing and systems levels. Particular emphasis is placed on statistical analysis, cost analysis, laboratory experiments and test and case problem solving applications.



**0906 Basic Blueprint Reading 3**

This course is designed to prepare students to read and interpret all types of blueprints and drawings common to manufacturing, including dimensions, shapes, machining operation, fabrication, and assembly. Students will be expected to apply basic mathematics in solving shop problems.

**0907 Reliability Objectives 4**

This is a survey course presenting concepts basic to modern reliability requirements; particular emphasis is placed on practical applications within manufacturing process and production operations.

**0908 Introduction to Nondestructive Tests 4**

Presents an overview of the relationship of non-destructive testing in the total quality function and the advantages and limitations of various test methods.

**0909 Mechanical Metrology 4**

This course presents instruction and laboratory experiments in the use of mechanical test and measurement equipment employed in quality control.

**0910 Electronics Quality Control 2**

This course is designed to examine the quality function specifically within the electronics industry.

**0911 Techniques of Supervision 4**

Covers employee development, with material directed toward the responsibility of any supervisor, including responsibilities of the supervisor functioning within an organizational structure; relates to communications, motivation, delegation of authority, interviews, orienting and inducing new employees and evaluation of employee performance.

**0912 Manufacturing Organization I 3**

In-depth study of the typical manufacturing organization for the first-line supervisor; examines in detail the duties and responsibilities of various functions that make up the manufacturing organization and studies interrelationships of the functions; reviews organization principles as they apply to the manufacturing operation; and develops some of the basic tools of managerial decision making and applies them to typical case problems.

**0914 (same as course 0911 above, except value in credits) 3****0915 Electrical Metrology 4**

This course presents instruction and laboratory experiments in the use of electrical test and measurement equipment employed in quality control.

**0916 Procurement Quality Control 4**

This is a study of the quality control principles and functions of procurements involving inspection techniques and inspection tools and records.

**0917 Reliability Techniques 3**

This course is designed to develop an understanding of the application of reliability techniques in obtaining or improving reliability analysis.

**0918 Machine Guarding Techniques 3**

This course is designed to inform the student about machine guarding principles and techniques.

**0919 Power Source Hazards 3**

Methods of grounding electrical equipment.

**0920 Evaluation and Control of the Occupational Environment 4**

Detection, evaluation and control of chemical, physical and biological health hazards, including quantitative sampling and analytical techniques for dusts, gases, vapors, noise, nonionizing radiation and other occupational hazards.

**0921 Principles of Industrial Safety 3**

Covers day-to-day responsibilities of management and supervision toward attaining an accident-free organization, with emphasis on first aid, fire prevention, control, starting and stopping of machines, accident investigations and other preventive measures; also covers methods of advertising good safety practices, rules of plant protection in relation to safety and OSHA.

**0922 Principles of Traffic Safety 3**

The course includes a study of the principles of traffic control and automotive transportation problems. It also includes a view of traffic safety research and remedial approaches to the solution of this national problem.

**0923 Techniques of Supervision II 3**

Develops necessary skills needed for effective management of people, with various topics developed through group discussions, case studies, and in-basket situations.

**0924 Techniques of Leadership II 3**

Develops necessary skills needed for effective management of people, with various topics developed through group discussions, case studies.

**0925 Manufacturing Organization II 3**

Continues Manufacturing Organization I (0912), studying quality control, research and development, marketing, production, and inventory control, personnel, and maintenance functions; also examines forms of ownership, analysis of financial data, capital investment considerations, and budgeting.

**0930 General Industry OSHA and First Aid 3**

This course is designed to give the student a knowledge of the Occupational Health and Safety Act by a study of the Act, a knowledge of hazard recognition by a study of the OSHA standards, and a knowledge of First Aid techniques by use of the American Red Cross Multi-Media course.

**0931 Time and Motion Study 3**

Studies time and motion in the practical application area using industrial practice as basis for the establishment of rates.

**0932 Safety Regulations 3**

Studies recording and maintaining an accident severity rate, correctly submitted workmen's compensation claims, insurance claims and managing a safety program in compliance with laws or contractual agreements.

**0940 Quality Control 3**

Places emphasis on principles and techniques of quality control to fulfill the organizational objectives of completing the job correctly the first time, with the purpose of the course to provide unit managers and supervisors with an understanding of the use of scientific quality control. Topics include vendor-customer relationships, sampling inspections, process control and tests for significance, with emphasis on an individual being able and qualified to determine what type of quality control is best for a particular industry.

**0941 Labor Relations 3**

Explores development and application of labor laws and practices that form the basis of modern day industrial relations, with topics including history and development of organized labor, federal labor legislation, labor-management laws, civil rights, state laws and regulations, local regulations, federal mediation and conciliation service, the organizing drive, the strike, collective bargaining, anatomy of a labor agreement, handling in-shop grievances and arbitration.

**0942 Purchasing and Inventory Control 3-4**

Provides practical approach to procurement with regard to price, quality, quantity, and delivery, with personal ethics, legal aspects of contracts, records, performance, and foreign procurement standards discussed in detail, and the role of the purchasing section or department, as a member of management's value analysis team, studied in depth.

**0943 Storeroom Operation and Warehousing 4**

To provide comprehensive methods and activities involved in all phases of Storeroom Operation and Warehousing, so as to equip the student with the knowledge and skills which will enable him to efficiently function in all phases of modern professional storeroom and warehousing work.

**0950 Manufacturing Costs and Value Analysis 3**

Applies recognized techniques and tests to measure value and thus eliminate unnecessary costs in design, development and manufacturing without affecting quality; differs from cost control in that it is directed toward analyzing value, not cost.

**0951 Production Planning and Control 3**

Brings the range of concept and techniques to useful application in practical design of production planning, inventory control systems and follow-up.

**0952 Work Analysis and Improvement 3**

Demonstrates how analysis of work methods and their improvement is the responsibility of every effective manager and supervisor whether specifically charged with it or not; develops a perspective of work simplification philosophies and practical tools for both scientific analysis and implementation of work improvement; investigates importance of job enrichment and ability to effect positive change through actual on-the-job assignments whenever possible.

**0954 Materials Handling 3**

Studies development and quality controls of industrial materials while handling and storing, shelf life of certain materials, weight and mass configuration and vendor's materials specifications.

**0956 Managerial Cost Accounting 3**

Studies development of standard cost systems, budgets and use of budgets as control devices; emphasizes methods of presenting cost data and interpreting this data for managerial decision making.

**0960 Economics of Industry 3**

Covers fundamental economics and basic principles of business systems in everyday terminology, with emphasis on practical economics as opposed to theoretical; includes various types of business organization, costs and pricing, competition, money system, taxes, productivity and automation.

**0961 Plant Layout and Process Planning 3**

Studies factory planning covering layouts for small and medium-sized plants, layout fundamentals, selection of production equipment and materials handling equipment, emphasizing the most efficient arrangements of work areas to achieve lower manufacturing costs; includes principles, practices as well as tooling determination, operational sequence, setup and operational time.

**0962 Traffic and Transportation Management I 3**

Presents development of personnel associated with or working in transportation and traffic management fields, covering technical developments and other phases of transportation organizations; includes discussions covering the American transportation system, federal regulations, freight traffic territory, freight classification, principles of freight rates and tariffs, shipping documents and their application, special freight services and a study of freight claims.

**0963 Manufacturing Processes I 3**

Shows how knowledge of present manufacturing processes is of extreme importance to technicians engaged in industry, with instruction dealing with technical fundamentals of important manufacturing processes, industrial materials and the modern machine tools necessary for processing these materials.

**0964 Industrial Assembly Techniques 3**

Studies methods of assembly, fasteners, the uniqueness of various assembly materials, metallurgy, plastics, and modern composition.

**0967 Drafting and Manufacturing Standards 3**

Includes drafting theory and practice with special consideration given to standard practices of dimensioning, tolerancing and notations of tooling components such as proper practices of revolving out of position, line elimination, sectioning and other related areas.

**0968 Case Problems in Management 4**

Requires the student to pull together all of the quantitative and qualitative skills developed in the program and apply them to the solution of specially designed case problems involving planning, leadership, control and financial analysis functions—a capstone course in the Industrial Management program.

**0969 Case Problems in Labor Relations 4**

This course will be assigned upon the completion of (0941) Labor Relations. It affords the student the opportunity to apply knowledge gained in the preceding course, along with his own reasoning skills, to the solution of actual or contrived cases, typical of those which will manifest themselves in the work environment.

**0970 Personnel Management 3**

Shows how effectiveness of personnel function is as dependent upon the managers who use or misuse it as it is upon the personnel staff itself, with participants in the course developing a perspective on specific personnel functions and skills to deal more effectively with personnel departments. Topics include manpower planning and development, job descriptions and analysis, employment recruitment, selection and placement promotions, transfer, separations, wage and salary administration, etc.

**0971 Manufacturing Processes II 3**

Identifies manufacturing processes and the materials as to design, specifications, facilities and economics, through visitation to various manufacturing concerns.

**0972 Traffic and Transportation II 3**

A continuation of Traffic and Transportation Management I (0962).

**0973 Training for Results 3**

Develops a realistic perspective of training as resource for the organization and provides participants with skills to develop and implement effective training, and topics including the nature of learning, concept teaching, creating a motivating learning atmosphere, the place of audio-visual aids and their use, planned versus spontaneous learning, curves and learning as problem solving. Participants test concepts presented with classroom training assignments and will be encouraged to validate them based on their own experiences.

**0974 Conference Leadership 3**

Shows how sound conference leadership requires a good deal more than subject knowledge and public speaking skills, and how the leader must also be an effective manager capable of drawing on and developing the resources of all conferees. Course assists participants in developing their roles as organizers, facilitators, controllers, summarizers, speakers, problem definers and problem solvers, with individualized conference leading experiences allowing for pulling together the concepts from previous courses and developing new insights for utilization of human resources.

**0975 Management Information Systems 3**

Advanced seminar develops greater perspective on quantitative skills and their role in effective management and supervision; participants develop working knowledge of various concepts and applications of quantitative business management information systems, with special emphasis on understanding the role of information system persons and developing working relationships with them. Topics include the systems approach to problem identification and solution, information and the management process, system analysis and design and a variety of other management systems. Course develops highly interactive atmosphere using actual organizational examples.

**0976 Organization Structure and Change 3**

Shows how knowledge without skills for implementation is as useless to most organizations as is change for the sake of change; investigates organizational structures and presents techniques for implementing planned change that will enhance the organization rather than merely destroy its structure; provides managers and supervisors at all levels with better understanding of the concepts of change and the practical skills to cope with both planned and unplanned change.

**0977 Industrial Supervision Seminar 3**

Advanced seminar provides participants with unique opportunity to explore a variety of leadership styles in light of their own experiences, establishing a testing ground to check effects of various styles on others and a low-risk atmosphere to develop alternative leadership patterns for each individual.

**0981 Transactional Analysis for Managers 3**

Examines concepts of Transactional Analysis as they apply to interpersonal communications and human motivation in the industrial workplace, developing in students a basic understanding of TA and skills in using the language, tools and techniques of TA on the job.

**0982 Management by Objectives 3**

Investigates practical uses, values and problems of MBO with participants developing company, departmental and individual objectives and determining how to constructively implement them, with emphasis on MBO as a tool for management rather than management a tool for it.

**0983 Time Management 3**

Aids supervisors and other interested personnel who desire to manage the business day more effectively, including effective strategies for time management and concepts of time behavior patterns. Participants engage in specific class exercises involving scheduling and allocation of time, identifying and handling time wasters, dealing with interruptions and planning for getting more from the working day.

**0987 Construction Safety and Health 3**

An introduction into construction industry operations and hazard control. This includes a discussion of site clearing, demolitions, excavation, building and highway construction. Special consideration is given to planning a safety program in the construction industry.

**0988 Radiological Safety and Hazard Evaluation 3**

State and Federal regulations concerning radioactive materials. Radiation safety as applied to accelerators, nuclear reactors, and radioactive byproducts. Methods of analysis applied to computation of biological radiation dose rates from various sources. Radiation effects on physical systems, as well as accidents involving radiation are considered.

**0989 Occupational Disease Control 3**

A study of environmental energy and chemical hazards including gases, vapors, fumes, dusts and mists. Also stresses the importance of protective clothing and equipment when physical corrections cannot be made. The course includes basic concepts of chemistry and physics that are fundamental to the control of chemical and energy hazards. The course also includes the principles of ventilation control.

**0990 Process Consultation 1**

Process Consultation is an organizational development tool. This course seeks to develop in the student the skills required to understand and improve the informal relationships, the traditions and the culture of an organization. The issues to be examined in the context include: communication, member roles and functions, group problem solving and decision making, group norms and group growth, leadership and authority and intergroup cooperation and competition.

**0991 Management of Conflict 1**

This course is designed to examine conflict on three levels: interpersonal, small group and intergroup. Students will study the nature of conflict at each level and examine various models for successfully resolving conflict. Students will complete a conflict management survey instrument to determine their own personal conflict management style.

**0992 Powerplay 1**

The students participate in an open-ended simulation which is designed to develop skill and confidence in exerting power so that they may more effectively achieve their personal and social goals. Students will examine their own values regarding power, and then practice planning, analyzing and using power. They do this as individuals and as teams using three power strategies: negotiation, coercion and collaboration, and the tactics that go along with them.



- 0993 Team Building 1**  
Team building is an organizational development tool. The students will learn that the basic building blocks of a successful organization are groups (teams) and that the basic units for change are groups rather than individuals. Three types of teams and the models for building them will be studied. Students will also study the characteristics of good and poor work teams, the four stages of developing them and the conditions necessary for successful team building.
- 0994 Environmental Health I 4**  
In this first section of a two-part study, the study will deal with the recognition of specific environmental factors or stresses making surveys for each type of environmental hazard and the measurement equipment used in such surveys.
- 0995 Operational Workplaces 3**  
A study of standards for floors, walkways, ramps, stairs, ladders and excavations with a view of eliminating hazards which can cause falls and other types of accidents.
- 0996 Disaster Control 3**  
A study designed to consider the actions before, during and immediately after an emergency occurs. This includes plans for the protection of people, equipment and plant facilities during emergencies, as well as the broader aspects of the protection of the community of larger geographical areas.
- 0997 Environmental Health II 4**  
The second part of the Environmental Health I (0994) enters into the field of toxicology: control of environmental hazards, methods and anatomy, hazards monitoring and protection.
- 0998 Noise Pollution Control 3**  
This course is designed to inform the student of the effects and control of noise in the industrial environment. The following areas will be explored: definition of noise, measurement of noise, noise and hearing, federal standards, elements of sound and instrumentation as related to sound and noise.
- 0999 Chemistry of Hazardous Materials 4**  
An introductory study into the chemical makeup of and principle dangers inherent in potentially hazardous materials. These materials include compressed gases, combustible and flammable liquids, explosives, blasting agents and corrosives.
- 11 Marketing**
- 1112 Introduction to Business 4**  
A basic business course for awareness of the scope of business operations including management, marketing, production, finance, accounting, data processing, legal structure, and economics.
- 1114 Marketing I 4**  
An introduction to marketing goods and services, including business considerations for product planning, pricing, distribution and promotion.
- 1115 Sales Techniques 4**  
A dual purpose course: the selling process and applied selling skills. Sales and directly related sales positions represent the largest career occupational field for earning a living in the American private enterprise system.
- 1116 Marketing II 4**  
A study of business and marketing cases, applied by presentations and discussion as a basis for business decisions.
- 1135 Principles of Retailing 4**  
A study of retailing concepts and practices. Emphasis is on retail merchandise planning, buying, promoting, and controlling activities in established retail operations.
- 1136 Physical Distribution 4**  
A study of physical flow of products and the operation of efficient material handling systems. Emphasis is given to coordination of transportation systems.
- 1137 Buying & Inventory Control 4**  
Coverage is provided on the decision and skill requirements related to purchasing of products and services for business, including the tasks of procurement, negotiation, transportation and inventory management.
- 1147 Principles of Advertising 4**  
A broad coverage of advertising as a key in promoting goods and services in the market place. Focus is on advertising functions, activities, and concepts for business personnel when communicating with advertising specialists.
- 1148 Principles of Insurance 4**  
An introductory course to basic insurance concepts and coverages relating to property, liability, life, health, business, and homeowners, automotive, and government programs.
- 1151 Introduction to Public Relations 4**  
A review and application of fundamental public relations concepts and principles for increased awareness of the role of public relations and the management function. Focus is on liaison with public relations specialists by business personnel.
- 1157 Entrepreneurship 4**  
A foundation course for decision to enter into a self-employment undertaking as a small business entrepreneur. Coverage also is applicable to the generalist administrator employed in a small business enterprise. Focus is on development of a business plan for entering into a small business operation.
- 12 Secretarial Sciences**
- 1210 Shorthand I 4**  
Introduces symbol, A B C, or machine shorthand with special emphasis on basic theory, brief form and speed in reading from plate notes or machine notes; introduces dictation with emphasis on writing shorthand outlines or mastery of the machine keyboard.
- 1212 Typewriting I 4**  
Designed for beginners, the course covers the development of fundamental touch typewriting techniques and skills and their applications, including business letters, manuscripts, centering, tabulation, machine parts and care, and speed development.
- 1214 Personal Development 4**  
Enables students to analyze and improve themselves in terms of posture, figure control, personal hygiene, grooming, wardrobe, personality and communication skills so they possess the personal qualities necessary for success in their chosen field.
- 1220 Shorthand II 4**  
Emphasizes the taking of dictation, reading of notes, and developing of transcription skills, stressing development of speed and accuracy through drills and tests; stresses essentials of good English principles.
- 1222 Typewriting II 4**  
Continues Typewriting I with higher development of vocational competency, including typing of business letters, forms, manuscripts and tabulations; stresses speed and accuracy with emphasis on production typing problems and speed building.
- 1224 Records Management 4**  
Acquaints students with methods and procedures of maintaining business records of various types; develops skills in implementing those methods and procedures in practice situations.
- 1226 Data Entry 4**  
This course is designed to develop a high level of skill in operating key punch, key to tape, or key to disk equipment. Speed and accuracy are stressed. These two attributes are attainable by constantly striving to achieve a steady rhythm and light touch on the keyboard.
- 1230 Shorthand III 4**  
Includes a continued review of fundamentals with emphasis on skill in taking new matter dictation and mailable transcription; stresses essentials of good English principles.
- 1232 Typewriting III 4**  
Improves production typewriting ability in business situations, with problem and production techniques including complex tabulation, statistical reports, rough drafts, manuscripts and forms.
- 1236 Office Calculating Machines 3**  
Gives the student a competent skill level in the application of related problems and the basic operation of calculating machines representative of those used in business offices.
- 1240 Shorthand IV 4**  
A continuation of Shorthand III with increased emphasis on dictation speed and transcription accuracy with theory review.
- 1241 Clerical Office Procedures 3**  
*Prerequisite: 1222*  
Acquaints the student with opportunities available to clerical workers, including general qualifications required. Student learns such skills as filing, machine transcription, duplicating machine techniques and receptionist training, with introduction to duties of the Legal, Medical and Administrative Secretary also provided.
- 1242 Typewriting IV 4**  
Continues Typewriting III with emphasis on production typing.
- 1250 Shorthand V 4**  
Continues Shorthand III and IV with emphasis on technically specialized materials. Vocabulary building in the areas of Legal, Medical and Industrial fields is stressed.
- 1255 Introduction to Word Processing 2**  
Designed to give the student the cognitive skills necessary to identify word processing terms, systems, their concept, history and future, and to give them the knowledge necessary to perform technically on present-day, state-of-the-art equipment.
- 1256 Word Processing Operations 4**  
Designed to give the student "hands on" training experience on the IBM 5520 Administrative Word Processing System.
- 1260 Shorthand VI 4**  
A continuation of shorthand V with selection of additional technical options.



- 1262 Typewriting V 4**  
Stresses improvement of production techniques, including correspondence, business forms, manuscripts, tabulation and secretarial projects; also, transcription of machine-recorded dictation, correct use of grammar, spelling and letter format; develops a high degree of productivity and skill.
- 1267 Machine Dictation and Transcription 3**  
Introduces the student to the operation of transcription equipment stressing the typing of perfect mailable copy of business letters.
- 1270 Introduction to Typewriting 3**  
A course for beginners in typewriting. It covers the development of fundamental touch typewriting techniques and skills and their application.
- 1274 Supervision of Word Processing Operations 4**  
Gives students the information and skills necessary to supervise IBM 5520 Administrative System operators and activities.
- 1275 Word Processing Files Management 4**  
Gives students the information and skills necessary to create, use, change and update files on the IBM 5520 Administrative Word Processing System.
- 24 Library Resource Aide**
- 2415 Audio Visual Equipment Operations & Maintenance 3**  
Teaches student to operate a variety of AV equipment; covers basic maintenance procedures for various hardware items.
- 2417 Library and Learning Resource Center Fundamentals I 3**  
Presents a general introduction to all major phases of library and learning resource center operations, especially as they pertain to the role of "library aides"; includes library organizational patterns, technical and public services, media systems, and introduction to the card catalog, library classification systems and the book.
- 2418 Library and Learning Resource Center Fundamentals II 3**  
Provides an introduction to the various types of library materials, their organization, characteristics and use in support of the library's function, with emphasis on reference service and in-depth knowledge of standard reference tools. Includes a unit on children's literature and story hour.
- 2419 Library Forms and Records 3**  
Introduces standard forms and record keeping including shelf listing, serials control and filing as they apply to library functions. Also includes preparation of book orders and catalog cards and book processing.
- 2424 Library Technical Services I 3**  
Introduces in depth treatment of procedures for ordering, receiving and processing library materials; including mending, book repair and physical preparation of the materials for shelving.
- 2425 Audio Visual Production 3**  
Introduces students to producing a variety of media production techniques. Covers such projects as moving pictures, lettering, preparing transparencies and displays.
- 2426 Library Technical Services II 3**  
Covers simple cataloging and classifying procedures, practice in card preparation and maintenance of card catalog.
- 2427 Library Operations and Practices 5**  
Exposes students to service demands of patrons and the operations that provide the service, with students gaining hands-on experiences in a variety of tasks, including circulation services, reference services, vertical file maintenance, displays, etc. Gives actual experience in LRC or library environment.
- 2428 Library Technology Seminar 4**  
The seminar provides an opportunity to examine special problems or topics of current interest through group discussions and guest speakers.
- 2433 Library Public Services I 3**  
Exposes students to basic skills and operations in areas of public assistance including circulation, informational services, inter-library loan and special programs.
- 2434 Library Public Services II 3**  
Introduces students to the organization, operation and services of the reference department in various types of libraries, with emphasis on becoming familiar with a wide variety of reference tools and books related to children's services.
- 2441 Studio Lighting and Set-Up Techniques 3**  
Provides basics of studio lighting and familiarity with sets, equipment and production, with individual implementation of lecture materials in lab students' responsibility.
- 2442 Introduction to Video Production 3**  
Project exercise in the production of ½" black and white VTR tapes. Students will be required to produce finished VTR tapes which have "live" voice, voice over, titles and signatures. Students will also be required to conduct VTR taping of evaluative feedback exercises.
- 2443 Introduction to Health Science Libraries 3**  
Introduces the hospital organizational structures and the standards for hospital libraries, also familiarizing student with basic reference and bibliographic tools used to give information services in the Health Sciences.
- 28 Medical Laboratory Technician**
- 2811 Fundamentals of Laboratory Techniques 4**  
This course deals with the elementary and basic skills in the medical laboratory.
- 2813 Immunohematology Techniques 4**  
This course will instruct the student in the theory and practice of blood banking techniques.
- 2814 Routine Analysis Techniques 4**  
This course is provided to provide the student with the principles and practices of clinical laboratory techniques in the routine analysis of body fluids.
- 2820 Hematology Techniques 8**  
This course presents principles and practices of laboratory techniques in hematology and coagulation including routine and special procedures.
- 2821 Blood Banking Applications (Immunohematology) 6**  
This course includes study of the procedures found in a clinical laboratory blood bank including: detection of various blood group system antigens and antibodies, donor screening, hemolytic disease of the newborn, phlebotomy and processing and recommendations of the American Association of Blood Banks.
- 2822 Routine Analysis Applications 6**  
The study of clinical applications of routine urine analysis in the hospital laboratory including physical, chemical and microscopic examination of urine with exposure to special tests such as Benec Jones proteins and addis counts.
- 2823 Microbiology Techniques 6**  
This course covers the principles and practice of laboratory techniques in bacteriology including classification and identification of micro organisms.
- 2929 Parasitology and Mycology 2**  
This course introduces the student to the collection and processing of specimens, isolation, and identification of fungi, parasites, and the mycobacteria.
- 2830 Chemistry Techniques 8**  
This course includes the study of principles and practice of laboratory techniques of clinical chemistry.
- 2831 Hematology Applications 6**  
A course designed to study hematological tests and the principles and laboratory techniques of hematology.
- 2832 Immunology Techniques 4**  
This course will introduce the student to the basic principles of immunology and serology.
- 2840 Chemistry Applications 8**  
This course is designed to acquaint students with the analytical aspects of clinical chemistry and laboratory testing.
- 2841 Microbiology Applications 6**  
A study of the applications and clinical practices of bacteriology found in the hospital laboratory.
- 2842 Immunology Applications 6**  
The study and practice in the clinical application of serology in the hospital laboratory including syphilis testing, testing for infections, auto-immune diseases and pregnancy.
- 2851 General Chemistry 3**  
This course addresses matter in full forms and reactions, as well as basic concepts of atomic structure, bonding, equilibrium, acid-base chemistry, solutions and chemical calculations; also introduces principles of organic chemistry and biochemistry. Course emphasizes student expertise in laboratory techniques and analysis.
- 2860 Advanced Chemistry Techniques 2**  
This course includes the study of structures in relationship to biological functions of cellular constituents, including carbohydrates, proteins, lipids, nucleic acids and enzymes, metabolic processes and control in the human body.
- 2863 Instrumentation 3**  
This course includes instrumentation theory and practice as applied to electronic equipment and automated systems in the medical laboratory.
- 3248 Basic Life Support Concepts and Skills 3**  
Provides knowledge for security personnel, hospital employees, allied health workers, business office personnel and interested persons in industry to render immediate care at site of accident or medical problem until professional emergency medical technicians arrive and transport victim to medical facility.

## 34 Culinary Arts Option/

### Hotel-Motel Management

#### 3410 Introduction to Catering 4

Social catering is a rapidly expanding field as individuals, families, and organizations continually seek good catering services. The caterer must be able to please the customers with both quality of the product and the service. This course, therefore, helps the novice as well as the established caterer to start or improve his business.

#### 3443 Gourmet Food Preparation 6

Studies transition from volume food preparation to gourmet foods, with preparation of highest quality food. Students take turns leading operations in gourmet preparation of individual dishes; also includes marketing, menu writing, recipe research and methods; preparation and potentials for showmanship.

#### 3444 Introduction to Food Service 3

Studies the history of various cuisines and contributions of leading Culinaricians as well as the background of the food service industry. A study is made of the various types of food service establishments and organizational structures within each type. Future trends of the Food Service Industry will be discussed.

#### 3446 Food and Beverage Service 3

A course dealing with types of dining service appropriate for coffee shops, dining rooms, banquets and buffets. It covers liquor laws and the fundamentals of the service of legal beverages.

#### 3449 Food Specialists III-Garde Manger II 3

Advance Garde-Manger techniques, such as aspic-pates, chaud-froid, Terrines, gelatines and sauces are studied; manipulation of the tools which are used is stressed. Buffet table arrangement and organization will also be stressed.

#### 3452 Food Service I 3

A study of the fundamentals of food preparation, service procedures, sanitation, and safety practices in the food service business. Controls and management functions also are discussed.

#### 3454 Foods Service Specialty-Baking 3

Introduces the student to the preparation and use of yeast in breadmaking and pastries. Topics will include baking of pies, cakes, tarts, use of equipment and sanitation.

#### 3455 Menu Design 4

Menus are planned for varying numbers of people in order to meet the food requirements of various types of food service operations. This course includes principles and practices relating to pricing menus, ordering, conversion of recipes from small to large quantities, various types of menus and food preferences of the public. The principles of nutrition which are necessary for planning well balanced menus receive special emphasis.

#### 3456 Food Service Specialists II-Garde Manger I 3

Special Garde Manger techniques, such as ice and tallow sculpturing are studied and the manipulation of the tools which are used is stressed. Buffet showpieces such as watermelon baskets, table arrangements of fresh fruits and vegetables and similar accent decorative showpieces will be completed. Students will be introduced to the art of pulled sugar.

## 37 Medical Assistant

#### 3712 Medical Office Procedures-Clinical I 4

This course is designed to familiarize the Medical Assistant with preparing the patient for examination in the physician's office; obtaining and recording vital signs; care and preparation of sterile equipment; methods of sterilization; knowledge and care of instruments; and ordering of supplies.

#### 3713 Medical Office Bookkeeping 4

This course addresses the basic principles of bookkeeping for medical office settings, including principles of debit and credit, double entry bookkeeping, use of journals (particularly combined cost journals) and analyzing transactions.

#### 3719 Medical Typewriting 3

*Prerequisite: 1212*

Course focus is on improving production typewriting ability in the medical field, with emphasis on articles, medical forms, case histories and correspondence using medical terminology.

#### 3721 Medical Office Procedures-Administrative 3

This course content includes basic secretarial, receptionist, housekeeping and managerial duties and responsibilities pertinent to medical offices and health care agencies, including records management, mail handling, fundamentals of using a schedule and telephone, inventory procedures, financial administration, contact procedures with vendors, patients, hospitals, and professional agencies; responsibilities in the physician's absence.

#### 3729 Medical Assistant Clinical Externship 4

*Prerequisite: Advisor Approval*

This course provides the opportunity to discuss and perform clinical procedures under supervision, with learning experiences obtained in selected physician's offices, clinics, and hospitals.

#### 3730 Medical Assistant Laboratory Techniques 4

Prepares students to perform various basic lab procedures including preparation of patients, collecting and preparing of appropriate specimens, familiarization with purposes and expected norms of lab test results.

#### 3732 Medical Office Communications 4

Course includes communication theory; provides practical application of oral, non-verbal and written communication with emphasis on their use in a medical office.

#### 3742 Medical Office Procedures-Clinical II 4

This course is designed to familiarize the medical assistant with the importance of nutrition in maintenance of homeostasis; preparation and calculation of medication; learning proper techniques for drug administration; learning and observing EKG procedures; learning techniques of physical therapy and how to assist in the procedures; observing and learning preparation of patient for x-ray procedures.

#### 3743 Machine Transcription Medical I 3

*Prerequisite: Advisor Approval*

Course addresses fundamentals of medical dictation and machine transcription, includes typing medical reports, medical terminology and medical correspondence, with students expected to demonstrate proficiency in typing and terminology involved in medical materials.

#### 3744 Machine Transcription Medical II 3

This course provides advanced skills and knowledge of medical dictation and machine transcription, includes typing medical reports, medical terminology and medical correspondence, with students expected to demonstrate proficiency in typing and terminology involved in medical materials.

#### 3752 Medical Office Procedures-Clinical III 4

Advances the knowledge and skills enabling the student to assist in the clinical management of patients in the medical and surgical specialties.

#### 3761 Community Health 2

This course addresses health services in the community which are directed toward the prevention of disease, maintenance and restoration of health.

#### 3763 Medical Office Management 3

This course provides background for organization and management of a physician's office and an in-depth study of various influences on office functions, includes governmental and professional sources for consultation.

#### 3765 Medical Insurance 3

This course provides an overview of medical insurance programs, with skills developed in handling insurance forms and reports as applied to the medical office.

#### 3766 First Aid and Emergency Care 3

This course provides students with information necessary to recognize emergency situations, know the proper course of action with different types of emergencies and apply appropriate first aid.

#### 3769 Medical Assistant Administrative Externship 4

This course provides opportunities to observe, perform and discuss various administrative procedures under supervision, with learning experiences obtained in selected physician's offices, clinics, and hospitals.

## 42 Surgical Technology

#### 4211 Surgical Techniques I 9-10

Presents basic principles of sterile technique in relationship to the pre-operative, operative and post-operative care of the patient, including orientation to an ideal situation, adoption of basic principles of patient positioning and transportation, the understanding of basic concepts of anesthesiology; the principles and skill in handling drapes, care of contaminated cases, understanding of explosion hazards, prevention of infections, processing and preparation of nondisposable items, principles of sterilization, instrument identification, suture and needle use, care of surgical specimens, importance of accurate record keeping, surgical preps and skill in hand scrubbing, gowning and gloving procedures.

#### 4221 Surgical Procedures I 5

Studies basic surgical procedures in relation to the total physiological aspects of surgical interaction, including a concept of the involved anatomy, existing pathology, surgical hazards encountered, surgical procedures and a review of the total patient care, including pre-operative diagnostic tests and immediate post-operative care.

#### 4222 Clinical Applications I 8

Enables Surgical Technologist students to correlate basic principles and concepts of classroom lecture to working situation through clinical experience; includes scrubbing and circulating on selected major and minor operations.



**4230 Surgical Procedures II** 5  
Studies advanced and specialized surgical procedures in relation to the total physiological aspects of surgical interaction. Focuses on the concept of the involved anatomy, existing pathology, and surgical hazards encountered, surgical procedures and review of total patient care, including pre-operative, operative and post-operative care.

**4231 Clinical Applications II** 10  
Continues Clinical Applications I (4222).

**4240 Clinical Applications III** 10  
Continues Clinical Applications II (4231).

**4242 Surgical Procedures III** 4  
A study of advanced and specialized procedures in relation to the total physiological aspects of surgical intervention. This includes a knowledge of the involved anatomy to be reviewed, existing pathology, surgical hazards encountered, surgical procedures and a review of patient care including pre-operative care, diagnostic tests and immediate post-operative care.

## 44 Practical Nursing

**4401 Foundations of Nursing** 3  
Students are introduced to the principles that guide nursing action, the hospital environment, patient safety, personal hygiene and principles and applications of body mechanics. The role of nursing in the health care team, types of health care facilities and equipment and the hospitalized patients are discussed.

**4402 Collecting, Reporting and Recording Patient Data** 3  
This course introduces the student to the principles of communications; assisting with physical examinations; measuring vital signs and reporting and recording pertinent information using correct medical terminology.

**4403 Therapeutic Measures** 4  
This course addresses the regulation of food and fluid intake and elimination. Students are taught to perform simple analysis on specimens. Included is the writing of nursing care plans in the non-complex situations; the principles of medical and surgical asepsis, pre and post-operative care and the administration of therapeutic agents.

**4406 Holistic Approach to Health** 2  
A review of theories of relatedness of body, mind and spirit. Roles of other health disciplines and the clergy in a holistic approach to health are discussed.

**4407 Nutrition** 2  
Introduces the basic principles of nutrition and diet therapy diets for various age groups. Socio-economics, ethnic and religious food preferences are discussed.

**4408 Oncologic Nursing** 1  
This course includes classification of neoplastic disorders, etiology, diagnostic procedures, current modes of therapy and nursing intervention.

**4409 Basic Science I** 4  
*Prerequisite: Admission to the Practical Nursing Program*  
Introduces the general body plan, the relationship of microorganisms and disease conditions, symptoms, diagnostic test, nursing measures and medical terminology as related to the body as a whole, and integumentary, musculoskeletal, cardiovascular and digestive systems.

**4410 Basic Science II** 4  
Introduces the relationship of microorganisms and disease conditions, symptoms and diagnostic tests, nursing measures and medical terminology as related to special senses and the nervous system.

**4412 Endocrine Nursing** 2  
Included in this course as applied to Endocrine Nursing are: deviations from normal function described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities for medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustments; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects of common generic disorders are discussed as well as preventive and first aid measures.

**4415 Cardiovascular Nursing** 2  
Included in this course as applied to Cardiovascular Nursing are: deviations from normal function described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities from medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustments; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects of common disorders are discussed as well as preventive and first aid measures.

**4416 Gastrointestinal Nursing** 2  
Included in this course as applied to Gastrointestinal Nursing are: deviations from normal functions described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities for medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustment; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects of common generic disorders are discussed as well as preventive and first aid measures.

**4419 Respiratory Nursing** 2  
Included in this course as applied to Respiratory Nursing are: deviations from normal functions described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities for medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustment; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects of common generic disorders are discussed as well as preventive and first aid measures.

**4423 Medical Surgical Clinical Nursing I** 7  
A clinical experience to provide students the opportunity to implement nursing skills as correlated to medical-surgical theory in the care of the adult patient. Emphasis is placed on the nursing process.

**4425 Musculoskeletal and Neurological Nursing** 2  
Included in this course as applied to Musculoskeletal and Neurological Nursing are: deviations from normal function described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities for medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustments; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects for common generic disorders are discussed as well as preventive and first aid measures.

**4426 Genitourinary** 2  
Included in this course as applied to Genitourinary Nursing are: deviations from normal function described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities for medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustments; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects for common generic disorders are discussed as well as preventive and first aid measures.

**4432 Medical Surgical Clinical Nursing II** 6  
A clinical experience to provide students the opportunity to implement nursing skills as correlated to medical-surgical theory in the care of the adult patient. Emphasis is on nursing process and drug administration.

**4434 Intravenous Therapy** 2  
Concepts of fluid, electrolyte and acid base balance as applied to total parenteral nutrition and therapy.

**4437 Dermatologic and EENT Nursing** 1  
Included in this course as applied to Dermatologic and EENT Nursing are: deviations from normal function described by diagnostic testing, symptomatology, and corresponding nursing action, group planning of holistic nursing care; information concerning supportive community agencies; nursing responsibilities for medical orders, drugs, and diet therapy; discussion of nursing action for rehabilitation and psychological adjustments; and modes for teaching the patient responsibility for healthful living. Both medical and surgical aspects for common generic disorders are discussed as well as preventive and first aid measures.

**4438 Gerontology** 2  
Includes the processes of normal aging with emphasis on increasing psychological, emotional, recreation, and activity needs of the individual elderly person.

**4439 Geriatric Clinical Nursing** 3  
A clinical introduction to geriatric care outside a hospital environment. Included is nursing care, activities, and recreation for the older adult.

**4440 Maternal Health Nursing** 3  
Information designed to meet the needs of both mother and infant through an understanding of the maternity cycle and the growth and development of newborns with appropriate nursing interventions.

**4442 Maternal Clinical Nursing** 3  
Provides students maternal nursing experience, including caring for mothers in labor, delivery, and on the post-partal unit, as well as caring for the newborn. Emphasis is placed on the nursing process.

- 4449 Practical Nursing in Today's Society** 2  
Includes history of nursing, nursing organizations, continuing education, legal aspects of nursing, licensure, employment, and moral and ethical issues raised by modern technology.
- 4453 Pediatric Nursing** 3  
Topics addressed are growth and development from infancy through adolescence, congenital anomalies and pathophysiology with appropriate nursing intervention.
- 4454 Pediatric Clinical Nursing** 3  
A clinical experience to provide students the opportunity to implement nursing skills in the care of the pediatric patient. Emphasis is on growth and development and the nursing process.
- 46 Radiologic Technology**
- 4609 Nursing Procedures for X-ray Technologists** 2  
Fundamental principles of nursing care pertinent to radiographic procedures are presented including vital signs, body mechanics, sterile technique and urinary catheterization.
- 4613 Radiation Physics I** 3  
The fundamental principles of physics and their application to the x-ray machine are discussed. Topics include: atomic theory, electrical circuits, construction of the x-ray tube, and properties of x-rays.
- 4620 Orientation to X-ray Technology** 4  
Elementary concepts of radiation protection, principles of radiation exposure and positioning terms are presented to prepare the student for entry into the hospital setting. Further development of the material presented in this course will occur in specific subsequent program courses. The historical development of radiologic technology and the role of the technologist are also discussed. Limited clinical observation occurs.
- 4622 Radiation Physics II** 3  
The parts of the x-ray machine are reviewed more thoroughly than in 4613. X-ray production and the effects of radiation upon matter are presented.
- 4623 X-ray Clinical Education I** 5  
Correlation of Positioning I (4624) with clinical activity according to the Clinical Competency Model. Orientation to the hospital setting occurs.
- 4624 Radiographic Positioning I** 3  
Positioning techniques, terminology and anatomy of the upper extremity, urinary and biliary systems are presented.
- 4625 Principles of Radiographic Exposures I** 3  
Fundamentals of film construction and processing plus the elements of radiographic quality are explored more thoroughly than in 4620.
- 4633 Radiographic Positioning II** 2  
Positioning techniques, terminology and anatomy of the lower extremity, stomach and other procedures of the upper gastrointestinal tract are presented.
- 4634 Principles of Radiographic Exposure II** 3  
Problem solving exercises to demonstrate conversion factors that affect radiographic quality are stressed. X-ray tube construction, tube rating and technique charts are also included.
- 4638 X-ray Clinical Education II** 6  
Correlation of Positioning II (4633) with clinical activity. Competency testing over previous skills is implemented.
- 4642 Imaging Techniques** 3  
Theories, principles and terminology of current imaging modalities are presented. Topics include: image intensification, ultrasound, CT scanning, xeroradiography and tomography.
- 4643 Radiographic Positioning III** 3  
Positioning techniques, terminology and anatomy of the vertebral column, bony thorax, breast and colon are presented.
- 4648 X-ray Clinical Education III** 6  
Correlation of Positioning III (4643) with clinical activity as competency testing continues.
- 4650 Radiographic Positioning IV** 3  
Positioning techniques, terminology and anatomy of the skull are presented with emphasis on routine positions of sinuses, facial bones, mastoids, and mandible. Retrograde urographic and intravenous cholangiographic studies are also discussed.
- 4655 X-ray Clinical Education IV** 6  
Correlation of Positioning IV (4650) with clinical activity as competency testing continues. A skills maintenance program is introduced.
- 4661 Special Procedures** 3  
Terminology, methods, techniques and equipment for selected procedures of the reproductive, vascular, neurological and other systems are presented.
- 4668 X-ray Clinical Education V** 6  
Integration of Imaging Techniques (4642) into clinical activity. Competency and skill maintenance testing continues.
- 4672 Radiobiology** 3  
This course presents current theories of the effects of ionizing radiation on living tissues. Radiosensitivity of tissues and specific effects of radiation are also stressed.
- 4678 X-ray Clinical Education VI** 6  
Special Procedures (4661) is integrated into the clinical activity. Students may begin final competency testing for all positioning courses.
- 4685 General Examination Review** 4  
This course provides comprehensive review of the five categories of the American Registry of Radiologic Technologists to prepare students for the national certification test. Anatomy, radiation physics and protection, positioning and principles of exposure are reviewed and tested in "mock" certification tests to increase student proficiency.
- 4688 X-ray Clinical Education VII** 6  
Final competency tests over all routine procedures plus comprehensive review of clinical procedures is accomplished.
- 48 Respiratory Therapy**
- 4810 Basic Science** 4  
Studies the fundamentals and principles of chemistry, physics and mathematics related to respiratory therapy, introducing English and metric measuring systems and symbol systems; stresses general gas laws related to gas transport.
- 4812 Respiratory Therapy Science I** 6  
This course gives a brief history of respiratory therapy and acquaints the student with the principles and practices of oxygen administration, humidity, and aerosol therapy. Emphasis is placed on safety and equipment.
- 4813 Nursing Techniques** 2-3  
A basic course in nursing arts which includes patient needs, asepsis, vital signs, isolation techniques and charting.
- 4820 Cardiopulmonary Physiology** 4  
*Prerequisite:* 4812  
In depth study of the cardiopulmonary system with emphasis on airway management.
- 4821 Respiratory Therapy Science II** 6  
*Prerequisite:* 4812  
Students are acquainted with the principles and practices of mechanical respirators, airway management, and chest physiotherapy applied to respiratory therapy.
- 4822 Respiratory Therapy Applications I** 5  
*Prerequisite:* 4812  
Studies various applications of respiratory therapy by observation, with students rotated through various clinical areas.
- 4823 Clinical Practicum I** 5  
*Prerequisite:* 4812  
Students develop skills and knowledge by performing the various respiratory therapy tasks in the clinical areas under supervision.
- 4830 Laboratory Data** 3  
*Prerequisite:* 4812  
*Co-requisite:* 4820, 4821, 4831  
Provides the students with understanding of techniques of sputum collection, lung function testing and blood gas analysis.
- 4831 Clinical Medicine** 4  
Introduces etiology, symptomatology diagnosis, therapeutics and prognosis of disease conditions related to respiratory therapy.
- 4832 Respiratory Therapy Applications II** 5  
Continues Clinical Practicum I (4823).
- 4833 Clinical Practicum II** 8  
*Prerequisite:* 4823  
A continuation of Clinical Practicum I (4823).
- 4835 Respiratory Therapy Science III** 6  
*Prerequisite:* 4831  
This course introduces the student to the practice of critical respiratory care, both the adult and the infant. The student will study volume ventilators, pediatric ventilators, and the care of patients receiving mechanical ventilation.
- 4837 Pulmonary Pathophysiology** 4  
*Prerequisite:* 9354  
Introduction to etiology, symptomatology, diagnosis, therapeutics, and prognosis of disease conditions related to respiratory therapy.
- 4841 Clinical Practicum III** 13  
*Prerequisite:* 4833  
A continuation of Clinical Practicum II (4833).
- 4844 Cardiopulmonary Laboratory Diagnosis** 4  
*Prerequisite:* 4837  
This course introduces the student to the function of the cardiopulmonary laboratory. The student will gain an understanding of basic pulmonary function tests and techniques. A portion of the course will cover electrocardiography and basic cardiac arrhythmias.



**4845 Seminar 2**  
*Co-requisite: 4841*

This course will allow the student to prepare and present in depth case studies and reports from current literature to the faculty and his/her peers.

**4846 Comprehensive Certification Review 4**

The content of this course will cover thirteen major units, which are the exact content categories recommended for study by the National Board of Respiratory Therapy. The material presented will help to increase the technician's confidence and ability to successfully pass the examination. Successful completion of this course with a "B" grade or better should increase the level of knowledge required to earn the C.R.T.T. credential.

**4847 Comprehensive Certification Review 5**

**NOTE:** Same as course (4846). New number was issued to permit the students to enroll in the course for the greater number of credits. The student will enroll in either 4846 or 4847-not in both courses.

**51 Agricultural Equipment**

**5113 Principles of Internal Combustion Engines 3**

Studies fundamentals of internal combustion engines, including 2 and 4 cycle, engine theory, magnets, battery and thermal ignition, carburetors, fuel pumps, cooling and lubrication systems; also preventive maintenance and safety.

**5114 Direct Current Fundamentals 3**

Deals with electrical functions of all 3 fueled engines as related to starting, storage, charging, lighting, and ignition components; also controlling and protective devices and safety precautions.

**5115 Hydraulic Fundamentals 3**

Studies basic components and their purposes, including flywheel, crankshaft, cam shaft, connecting rod, piston, head-cylinder block, sleeves, water pump, cylinders, conduction, accumulators, and cylinders, and multiplication of forces.

**5116 Tractor Engines 3**

Studies basic components and their purposes, including flywheel, crankshaft, cam shaft, connecting rod, piston, head-cylinder block, sleeves, water pump, oil lubrication pump, carburetor, fuel pump, distributor drive, governor and radiator design and purpose, as compared to diesel engines; also students will disassemble and assemble laboratory gasoline engines as means of comparison with diesel engines.

**5123 Diesel Engines I 3**

Deals with intake, cooling and lubrication, exhaust systems of agricultural and industrial diesels, including fuel delivery systems and theory of thermal ignition; fuel air and lubrication filtration and preventive maintenance required for each component; also students will disassemble and assemble laboratory diesel engines as a means of comparison with gasoline and L-P engines.

**5124 Manual Transmissions 3**

Studies sliding gear transmissions and related components of the power train, including clutches, differentials, final drives and power take off mechanisms as well as manual steering and brakes; also includes collar shift and synchromesh transmission.

**5125 Open Center Hydraulic Systems 3**

Studies hydraulic system used on older tractors and today's smaller tractors, and machinery, including gear and vane type pumps, spool and rotary valves, flow dividers, relief valves, single and double action cylinders, simple low horse-power hydraulic motors and preventive maintenance and safety.

**5126 Closed Center Hydraulic Systems 3**

Studies radial and axial piston type pumps, stroke control valves, accumulators, closed center rotary and spool valves, pressure control valves, direction control valves and volume control valves, with emphasis on preventive maintenance.

**5127 Hydraulic Assist Transmissions 3**

Studies hydraulic components of the main hydraulic supporting systems, including hydraulic assist steering, brakes, clutches, differential locks, power take off mechanisms, and hydraulic assist transmissions, with emphasis on preventive maintenance.

**5132 Diesel Engines II 3**

Studies diesel pumps and injectors, their timing and permissible service during tune-up; studies laboratory pumps and nozzles and air pollution and technician's role.

**5133 Environmental Control 4**

Studies natural resources in depth, including the current status of preservation; agriculture's responsibility in areas of soil, water and air pollution and technician's role.

**5134 Parts Department Management 3**

Studies the science of operating the parts department under accepted management procedures documented by successful dealers of the industry, including inventory control and turnover, and profit margins, with emphasis on obsolete parts and their management, and customer relations; also diagnosis of fill rate and emergency orders.

**5135 Diesel Engines III 2**

Employs dynamometer loading of a diesel engine to study thermal efficiency of engine with and without a turbocharger installed; engine fitted with intake and exhaust manifold vacuum-pressure gauges pyrometer, tachometer and manometer; also tune-up on dynamometer to original equipment manufacturer's specifications; emphasizes preventive maintenance.

**5137 Service Department Management 3**

Deals in operating the service department under accepted management procedure documented by successful dealers of the industry, with the selling of a purchase commodity-labor - as the basis for course; includes recovered labor costs, incentive programs, scheduling shop flows, flat rate, shop tickets, merchandising and customer relations.

**5142 Lawn and Garden Equipment 3**

Studies equipment powered by internal combustion engines of less than 35 horsepower; also includes plows, disks, harrows, rakes, tillers, seeders, fertilizer spreaders, sprayers, standby alternators, irrigation pumps and mowing equipment with preventive maintenance and safety emphasized.

**5144 Crawler Undercarriages 2**

Studies service requirements for the 13 main components of a crawler undercarriage, including servicing of flush and counterbored track links and the track master link; diagnosis of undercarriage alignment as well as track alignment; emphasizes preventive maintenance and safety.

**5145 Farm Machinery II 2**

Studies adjustment, pre-delivery performance and calibration of components related to planters, drills, chemical and fertilizer machinery; emphasis on preventive maintenance and safety.

**5146 Fuels, Lubricants and Coolants 3**

Brings into focus the fuel requirements and specifications for each of the 3 fuels used in internal combustion engines, with the lubricant specifications specified in the operator's manual studied in relation to published specifications as determined by the American Petroleum Institute; also studies coolant service and requirements; emphasis on preventive maintenance.

**5147 Bearings and Seals 3**

Studies in detail friction and anti-friction bearings and dust and liquid seals, including bearing and seal installation for each type of bearing and seal, and proper preload and end play of bearings; emphasis on proficiency of installation as well as preventive maintenance.

**5148 Belts and Chains 3**

Studies belt types and load rating along with proper installation as to alignment of belt pulleys and tightness of belts, with chain types and sprocket alignment as well as chain sag discussed; emphasis on daily preventive maintenance.

**5149 Tires and Tracks 2**

Studies off-the-road tires, including size, composition codes, service and maintenance; emphasis on track maintenance instruction to operators and preventive maintenance and safety.

**5154 Farm Machinery I 2**

Studies primary and secondary soil tillage tools, including torque converter transmissions, adjustment and pre-delivery performance of plows, disks, harrows, multiple purpose tools and tiller, with emphasis on operational safety precautions.

**5157 Agricultural and Industrial Equipment Sales 2**

Studies art of selling new and used equipment at a profit, including trade downs, wash out sales and scrapping procedures; cost of doing business, pricing sales incentive and follow-up; equipment auctions and jockey's role in price determination; and cold canvassing as means of increasing equipment sales.

**5158 Diesel Engines IV 2**

Studies V-8 diesel, pump injector, single unit, supercharger, two cycle diesel theory, amerooids and servicing in course for industrial servicemen.

**5164 Farm Machinery III 2**

Deals with harvesting and handling machinery common to area farms, including grain and corn combines.

**5165 Diesel Pump Calibration and Service 2**

Amount and rate of delivery of diesel injection pumps will be calibrated on a diesel pump test stand; studies overhaul and diagnosis of pump wear, plus assembly and setting to pump specifications on the pump stand and running advance of injection; emphasizes preventive maintenance.

**5168 Agricultural Safety 3**

Covers in depth those aspects of safety which the agricultural equipment technician can most effectively use.



**5169 Preventive Maintenance 2**

Studies a broad range of equipment and special maintenance problems which must be systematically addressed to prevent undue cost in keeping costly equipment functional and efficient.

**5180 Farm Machinery V 3**

A study of efficient farm production including tractor work capacity, machinery production capacity, expected tractor and machinery depreciation, custom work, leasing ownership, operating costs and long-range plan of replacement.

**5183 Hydrostatic Hydraulic Transmissions 3**

Deals with components of systems, including variable flow hydrostatic pumps and motors, charge pumps, check valves, control valves, crossover relief valves, shuttle valves, swashplates and servo pistons.

**5184 Torque Converter Transmissions 3**

Concepts of the high torque-low speed characteristics of this transmission will be studied in conjunction with the torque converter and lock-out clutch for high speed lower torque applications. Laboratory work will include the set-up of preload and end play of input and output shafts and cluster gears. The Technical Manual of the Transmission will be followed.

**54 Architectural Drafting****5421 Basic Architectural Drafting 3**

An introductory course involving architectural drafting equipment, lettering, isometric, oblique, pictorial, perspective and free-hand sketches.

**5422 Residential Construction Materials 3**

This course covers the architectural and structural construction materials used in residential and small commercial buildings. These materials, their sizes, applications and alternatives will be studied.

**5430 Light Construction Presentation 3**

This is the first part of a three part project. This course introduces design of a residential structure with emphasis on size and space relationships. Individual rooms, traffic patterns, zones and exterior styling are considered. A working floor plan, foundation plan and wall section will be developed.

**5431 Light Construction Lay-out 3**

This is the second part of a three part project. This course introduces design of a residential structure with emphasis on exterior materials, roofs and elevations. The building site will be evaluated and plot plan constructed. Door, window and room finish schedules will be developed with appropriate details.

**5432 Mechanical and Electrical Equipment 3**

This course introduces the student to the mechanical and electrical layout drawings required for a structure. Electrical circuits and the electrical plan; plumbing requirements and the plumbing plan; heating and cooling systems with their appropriate plan are studied.

**5433 Light Construction Detail Drafting 3**

This is the last part of a three part project. This course introduces design of a residential structure with emphasis on detailing. Bathroom and kitchen elevations are drawn locating fixtures and wall finish materials. Detailed sections through the stairways and fireplace are made identifying the structural components.

**5434 Fabrication Drafting 3**

Provides practical experience in the techniques of electronics construction, fabrication and assembly with the emphasis on proper care and use of shop tools and test equipment. The techniques used in diagramming electronic circuits and systems will be studied. Emphasis is placed on both the proper technique for drawing diagrams as well as the skill in reading and interpreting diagrams and electronic prints.

**5440 Medium Construction Presentation 3**

This is the first part of a four part project. This course covers the space and use requirements for a motel. Emphasis is placed on masonry units, poured concrete and precast members. The floor plan and foundation plan will be generated making sepias for future use.

**5441 Medium Construction Lay-out 3**

This is the second part of a four part project. This course introduces design of a concrete and masonry structure with emphasis on the wall sections, building elevations and site planning. Structure materials and traffic flow are major considerations.

**5442 Medium Construction Detail 3**

This is the third part of a four part project. This course introduces the student to the development of door and room finish schedules, drawing of door and window details; laying of floor and roof framing plans, and detailing stairways as required by the design.

**5450 Heavy Construction Presentation 3**

This is the first part of a four part project. This course requires the students to design a structure of their choice using steel columns, beams, plates, angles, joists and decking, with emphasis on steel as a main supporting structure. A floor plan and foundation plan will be generated. The use of sepias will be encouraged for future use.

**5451 Heavy Construction Lay-out 3**

This is the second part of a four part project. This course requires the student to draw detailed wall section through columns and walls to establish the building elevation. Four exterior elevations will be drawn from the floor plan and wall sections.

**5452 Estimating 3**

This course is a basic class which introduces estimating procedures as they apply to the building industry. Material take-offs, methods overhead and contingencies, labor, equipment and various materials are studied.

**5453 Heavy Construction Detail 3**

This is the third part of a four part project. This course requires the student to design a door and room finish schedule, do door and window details and layout a reflective ceiling plan from an existing sepi. Conditions of the student's project will dictate detailing requirements.

**5454 Interactive Computer Aid Design 3**

An advanced computer graphics course reinforcing previously learned terminology, components and applications. This course introduces advanced graphic problems and allows one to generate more complex drawings and details.

**5456 Introduction to Computer Aid Design 3**

This course is designed for students who have already received in-depth training in either the architectural, structural, mechanical, electrical, or civil types of drafting. The course exposes the student to the current means of graphic design with computers. Students will become familiar with computer terminology, components, applications and develop attitudes required to work at the job with entry-level skills.

**5460 Team Project Presentation 3**

This is the first part of a three part project. A team consisting of a project captain and two or more assistants will prepare a set of presentation drawings. An office building, commercial building or institutional building will be processed with feasibility study, size and space relationship.

**5461 Team Project Layout 3**

This is the second part of a three part project. This course requires the students to prepare a set of working drawings based on the presentation drawing. Floor plan, foundation, wall sections and framing plans will be developed.

**5462 Team Project Detail 3**

This is the third part of a three part project. Working as a team, the 3 students will prepare mechanical, electrical and heating plans, elevations and plot plan as required by their design.

**5463 Structural Design and Drafting 3**

This course introduces the practical application of the theories learned in Statics (7551) and Strength of Materials (7552) as they apply in the architectural and structural engineering field. Part of the course is devoted to the design of simple footings, foundation walls, steel columns, beams, roof systems as well as wooden trusses. The remainder of the course is to be devoted to the design and drawing of structural connections and joints as they pertain to structural shop drawings.

**5470 Business Presentation Drawing 3**

Consists of students, functioning as a team representing various agencies, assimilating and computing data as needed, completing a set of working drawings for either light industry or an office building as approved by instructor.

**5471 Surveying Theory 3**

This course introduces the basic surveying equipment, procedures for performing measurements, turning angles, determining grades and areas of traverses. Calculations and surveying theories will be studied and recorded in field books.

**5472 Surveying Field Problems 3**

*Prerequisite: 5471*

Gives field exercise class experience in chaining, running a traverse, running a level circuit and keeping an accurate field book.

**5473 Architectural Rendering 3**

Presents introduction, history and review of pictorial types of drawings, study of light and color, rendering media and application of different techniques and media by practical exercises.

**5474 Plat Mapping 3**

Studies land boundary relationships with respect to common datum system of surveying, with emphasis on latitude and departure system of drawing layout, areas determination and use of aerial photographs.

**5475 Topographic Map Drafting 3**

Gives students experience in topographical surveying, methods of establishing grades and estimating quantities required for cuts and fills.

- 5476 Business Principles 3**  
Presents fundamental economics and basic principles of business and industry, with emphasis on economic and business principles involved in building construction and architectural design field, including architect-client relationships, architect-contractor relationships and operation finances of the architectural organization.
- 5477 Model Building 3**  
Entails small scale three-dimension construction of student's drafting projects, including customer presentation for appearance, function, landscaping and structural design.
- 5478 Specifications and Codes 3**  
Considers contracts and specifications as they relate to plans, building codes and actual construction, with basic relationships between specifications and working drawings considered from legal and working standpoint.
- 5481 Introduction to Quality Standards 3**  
Identifies quality standards as used in the millwork industry and their compliance with specifications.
- 5485 Medium Construction Structures 3**  
This is the last part of a four part project. This course introduces design of the mechanical and electrical plans of a commercial structure. Using sepias as electrical plan, plumbing plan and heating plan will be developed.
- 5486 Heavy Construction Structures 3**  
This is the fourth part of a four part project. This course requires the students to lay-out a framing plan of their structure. Details of structural steel connections, beam connections, joists, decking and miscellaneous items will be drawn. A plot plan will be generated to complete the project.
- 56 Auto Body**
- 5601 Basic Body Repair I 2**  
The students focus on characteristics of body metals and familiarization and installation of moldings, ornaments and fasteners.
- 5602 Basic Body Repair II 2**  
This course is a shop course with emphasis on the care and use of hand and power tools and equipment with emphasis on tool and shop safety; includes analysis of damaged sheet metal.
- 5603 Basic Body Repair III 2**  
Studies advanced basic body repair with emphasis on grinding, picking, filling and plastic applications related to minor damage repair.
- 5604 Basic Body Repair IV 2**  
Introduces students to skills necessary in preparing automobile for painting, including cleaning, masking and sanding.
- 5608 Basic Body Repair IV - Practicum 1**  
This course is supplemental to Basic Body Repair IV (5604).
- 5609 Basic Body Repair I - Practicum 1**  
This course is supplemental to Basic Body Repair I (5601).
- 5611 Collision Damage Repair I 2**  
Provides students with knowledge and understanding needed to analyze extensive body damage, determine what tools are needed, and procedures used to replace panels.
- 5612 Collision Damage Repair II 2**  
Continues panel replacement fundamentals with emphasis on developing skills needed in replacing extensively damaged panels.
- 5613 Collision Damage Repair I - Practicum 1**  
This course is supplemental to Collision Damage Repair I (5611).
- 5614 Collision Damage Repair II - Practicum 1**  
This course is supplemental to Collision Damage Repair II (5612).
- 5615 Basic Body Repair II - Practicum 1**  
This course is supplemental to Basic Body Repair II (5602).
- 5616 Automotive Chassis and Accessory Circuits 3**  
An introduction to basic electrical theory, automotive components and circuits. Also a basic study of troubleshooting techniques. This course places special interest on the construction, function and principles of operation of the battery.
- 5617 Suspension and Alignment For Auto Body 3**  
A study of the parts which make up suspension and steering of an automobile, plus, a thorough study of the theory of wheel alignment and wheel balance. Each of the five wheel alignment angles, steering wheel positioning, vehicle tracking, and wheel balancing principles will be covered.
- 5620 Frame and Chassis I 2**  
Increases students' knowledge of frame and chassis nomenclature including front suspension and rear axle; emphasizes tools and frame machines used in repair.
- 5621 Frame and Chassis II 2**  
A continuation of Frame and Chassis I (5620), with emphasis on conditions found in frame damage; includes frame gauges, team gauges, and other measuring devices.
- 5622 Frame and Chassis III 2**  
Develops skills in attaching car to frame machine using proper equipment, with emphasis on correction of minor frame misalignments.
- 5624 Auto Body Welding I 2**  
Studies applications of basic welding techniques in replacement and repair of panels, with techniques peculiar to automotive body repair also covered.
- 5625 Auto Paint Shop Practice I 2**  
Develops auto painting with emphasis on material and equipment handling.
- 5626 Auto Body Sheet Metal Alignment 2**  
This course covers alignment of sheet metal, doors, trunks, and glass. Body sealing, maintenance and rattle elimination are included. The student will gain experience in aligning all body panels and glass for appearance, operation and finishing (sealing) of the part.
- 5627 Auto Paint Shop Practice 1 - Practicum 1**  
This course is supplemental to Auto Paint Shop Practice I (5625).
- 5630 Collision Damage Appraising 2**  
Studies use of estimation guides, procedures for itemizing damage, interpreting abbreviations, part numbers, and conversion tables for time and money; emphasizes visual and physical inspection of damage, recording on estimate sheet in proper sequence, figuring correct cost for parts and materials, and obtaining correct total.
- 5632 Auto Paint Shop Practice II 2**  
The theoretical and practical aspects of final finishing procedures for complete car refinishing and spot repairs.
- 5634 Auto Paint Shop Practice II - Practicum 1**  
This course is supplemental to Auto Paint Shop Practice II (5632).
- 5636 Auto Paint Refinishing 2**  
A continuation of auto painting with emphasis on the complete refinishing of the auto; treating the auto as a complete unit.
- 5638 Glass Installation 2**  
This course focuses on the different types of automobile glass and their usage. Students will learn how to remove and install front and rear glass, install and adjust side glass, bond the rearview mirror and how to properly use rubber channel and synthetic rubber adhesive.
- 5639 Fiberglass/Plastic Repair 2**  
A course designed to acquaint students with the various types of fiberglass and plastic materials used in auto body repair. Both interior and exterior applications are covered.
- 5642 Welding Practices/Auto Body I 3**  
An introduction to basic welding techniques with emphasis on safety procedures as they pertain to the auto body field. Also special attention is given to the use of welding equipment, welding materials, and their common applications, which must be known by the auto body technician.
- 5643 Welding Practices/Auto Body II 2**  
A continuation of Welding Practices / Auto Body I with emphasis on the basic techniques of oxyacetylene welding, braying, and cutting. The basic technique of arc welding is also included.
- 58 Automotive Service**
- 5812 Chassis and Suspension Systems 3**  
This course covers the various frame designs used in the construction of an automobile, including the suspension components. The student gains experience in the repair and service of suspension components such as ball joints, idler arms, tie rod ends, etc.
- 5813 Braking Systems 3**  
An in-depth study of automotive braking systems. Includes hydraulic theory with special emphasis on service and repair of all brake components, such as booster units, master cylinders and wheel cylinders.
- 5814 Front End Alignment 3**  
A thorough study of the fundamentals of wheel alignment angles, wheel balance. Each of the five wheel alignment angles, steering wheel positioning, vehicle tracking, and wheel balancing principles will be covered in detail.
- 5817 Braking Systems Practicum 1**  
Braking Systems Practicum is a co-requisite with #5813 Braking Systems. The purpose of Braking Systems Practicum is to extend lab contact hours to a realistic amount in order for the student to complete Braking Systems objectives. Therefore, the student must take both courses concurrently because Braking Systems Practicum is not an independent course.
- 5821 Engine Theory Design & Construction 3**  
This course is designed to familiarize the students with the theory, construction and design of the internal combustion engine; emphasis is placed on the cooling and lubrication of the Automotive Engine.



**5822 Engine Tools and Equipment 3**

This course is designed to familiarize students with tools, machines and equipment needed for the rebuilding of the internal combustion engines.

**5823 Basic Electricity 3**

An introduction to basic electrical theory, automotive components and circuits. This course places special interest on the construction, function and principles of operation of the battery.

**5825 Fuel and Carburetor-Theory 3**

An intensive study of automotive fuels and carburetion systems such as single, double, and four-barrel carburetor, carburetor circuits, and an introduction to fuel injection systems. Students will learn emission control as it applies to the fuel system. Emphasis is on the shop procedures necessary in determining the nature of troubles developed in the fuel and emission systems of the automobile causing air pollutants. There is also trouble-shooting of the fuel and emission systems, providing a full range of testing, adjusting, tune-up, and replacing experiences.

**5826 Fuel and Carburetion-Overhaul 3**

Emphasis is on shop procedures for trouble-shooting, repairing, replacing or overhauling fuel systems components.

**5827 Conventional Ignition Systems 3**

The conventional breaker point ignition system components' functions, principles of operation and testing are covered in this course.

**5828 Electronic Ignition Systems 3**

An introductory course that exposes the student to the basic principles of electronics with regard to today's automobile. Special emphasis is placed on the electronic ignitions systems presently used.

**5832 Starter & Charging Systems Testing 3**

An intensive study of the constructions, function, and principles of operation of the electrical units of the automobile, including batteries, starting motors, generators, alternators, charging systems, regulators, interlock systems, dash instruments, and lighting systems. Emphasis is placed on developing a comprehensive understanding of all electrical components and systems with special emphasis on the diagnosis, testing, and repair of these systems.

**5833 Starter & Charging Systems Overhaul 3**

Emphasis is placed on developing a comprehensive understanding of all electrical components and systems with special emphasis on problems diagnosis and bench repair of units.

**5834 Engine Overhaul 3**

This course is designed to familiarize the students with the theory, construction and design of the internal combustion engine, the usage of proper tools, machines, and equipment needed for rebuilding and tune-up of engines. Emphasis is placed on diagnosing problems and repair.

**5835 Manual Transmission Overhaul 3**

The theory, operation, troubleshooting and repair of the power train of vehicles as it leaves the engine and is delivered at the wheels is studied. Emphasis is placed on the operation and maintenance of clutches and manual transmission.

**5836 Engine Overhaul Practicum I 1**

Engine Overhaul Practicum I is a co-requisite with #5834 Engine Overhaul. The purpose of Engine Overhaul Practicum I is to extend lab contact hours to a realistic amount in order for the student to complete Engine Overhaul objectives. Therefore, the student must take both courses concurrently because Engine Overhaul Practicum I is not an independent course.

**5838 Engine Overhaul Practicum II 1**

Engine Overhaul Practicum II is a co-requisite with #5434 Engine Overhaul. The purpose of Engine Overhaul Practicum II is to extend lab contact hours to a realistic amount in order for the student to complete Engine Overhaul objectives. Therefore, the student must take both courses concurrently because Engine Overhaul Practicum II is not an independent course.

**5839 Engine Overhaul Practicum III 1**

Engine Overhaul Practicum III is a co-requisite with #5834 Engine Overhaul. The purpose of Engine Overhaul Practicum III is to extend lab contact hours to a realistic amount in order for the student to complete Engine Overhaul objectives. Therefore, the student must take both courses concurrently because Engine Overhaul Practicum III is not an independent course.

**5840 Engine Overhaul Practicum IV 1**

Engine Overhaul Practicum IV is a co-requisite with #5834 Engine Overhaul. The purpose of Engine Overhaul Practicum IV is to extend lab contact hours to a realistic amount in order for the student to complete Engine Overhaul objectives. Therefore, the student must take both courses concurrently because Engine Overhaul Practicum IV is not an independent course.

**5843 Automotive Power Trains II 3**

A continuation of the study of the power train as it leaves the engine and is delivered at the wheels; with emphasis on universal joints, differentials and rear axle assemblies, including the use of barrel gauges. Checking, disassembly, and replacement of bearings and wheel assemblies are also included. Emphasis is placed on an understanding of the various types of lubricants and their application to the modern automobile.

**5844 Advanced Tune-up Practicum 1**

Advanced Tune-up Practicum is a co-requisite with #5845 Advanced Tune-up. The purpose of Advanced Tune-up Practicum is to extend lab contact hours to a realistic amount in order for the student to complete Advanced Tune-up objectives. Therefore, the student must take both courses concurrently because Advanced Tune-up Practicum is not an independent course.

**5845 Advanced Tune-up 3**

An advanced course to familiarize students with the importance and necessity of troubleshooting and pinpointing diagnostic procedures. Special emphasis is placed on the operational principles of the automotive engine, and the components that support good performance are studied. The laboratory is used for diagnosis and evaluation.

**5847 Automotive Air Conditioning - Theory, Service, Components 3**

An intensive study of automotive air conditioning, including both heating and cooling. Special emphasis is placed on the operation and trouble-shooting of the air conditioning refrigeration system and its components. Vacuum and electrical control systems are also included.

**5848 Automotive Air Conditioning - Diagnosis & Repair 3**

This course covers diagnosis of air conditioning malfunctions and the repair, replacement and/or overhaul of various components.

**5851 Automotive Accessories & Electronics 3**

Basic study of the function, construction, principle of operations, and troubleshooting techniques for the varied accessories of automotive vehicles, to include windshield washers and wipers, power seats, power windows, adjustable steering wheels, power tailgates, headlight enclosures, speedometers, etc. Specific automotive applications include: installation of radios, antennas, speaker systems, and transistor ignition systems; operation and maintenance of lighting and signalling systems, headlight dimmers, electrically operated safety devices, buzzers, flashers, and electric motor operated devices.

**5852 Engine Tune-Up 3**

This course is developed to have an intensive study of diagnosing, repairing and replacing defective components parts. Special emphasis is placed on the operational principles of the automotive engine and emission controls.

**5853 Engine Tune-Up Practicum 3**

Engine Tune-Up Practicum is a co-requisite with #5852 Engine Tune-Up. The purpose of Engine Tune-Up Practicum is to extend lab contact hours to a realistic amount in order for the student to complete Engine Tune-Up objectives. Therefore, the student must take both courses concurrently because Engine Tune-Up Practicum is not an independent course.

**5854 Automotive Transmission Theory 3 and Operation**

A lecture - laboratory course in automatic transmission which includes construction, function and principles of operation. Emphasis is placed on power within the transmission.

**5855 Auto Transmission - In-Car Service 3**

Understanding of automotive transmission operational diagnosis and preventive maintenance servicing.

**5856 Automatic Transmission - Bench Overhaul I 3**

Emphasis is placed on practical type work on dead transmissions and their components.

**5857 Automatic Transmission - Bench Overhaul II 3**

Theory and practical work include diagnosis, correction and testing malfunctions on live transmission.

**5858 Automatic Transmission - Bench Overhaul I Practicum 1**

Automatic Transmission - Bench Overhaul I Practicum is a co-requisite with #5856 Automatic Transmission - Bench Overhaul I. The purpose of Automatic Transmission Bench Overhaul I Practicum is to extend lab hours in order for the student to complete Automatic Transmission Bench Overhaul I objectives. Therefore, the student must take both courses concurrently because Automatic Transmission Bench Overhaul I Practicum is not an independent course.

**5862 Comprehensive Diagnostic Procedures I 3**

The purpose of this advanced course is to provide a work environment typical of automotive service centers for skill practice and development.

Vehicles will be diagnosed, evaluated and given approval of instructor; students perform minor and major repairs to journeymen's standards with minimal supervision and instructor assistance.

**5863 Comprehensive Diagnostic Procedures II 3**

The purpose of this advanced course is to provide a work environment typical of automotive service centers for skill practice and development.

Vehicles will be diagnosed, evaluated and given approval of instructor; students perform minor and major repairs to journeymen's standards with minimal supervision and instructor assistance.

**5873 Automatic Transmission Bench Overhaul II Practicum 1**

Automatic Transmission Bench Overhaul II Practicum is a co-requisite with #5857 Automatic Transmission Bench Overhaul II. The purpose of Automatic Transmission Bench Overhaul II Practicum is to extend lab contact hours to a realistic amount in order for the student to complete Automatic Transmission Bench Overhaul II objectives. Therefore, the student must take both courses concurrently because automatic Transmission Bench Overhaul II Practicum is not an independent course.

**60 Building Construction****6001 Carpentry Fundamentals 3**

Probes and illustrates traditional and progressive skill needs of introductory students in Building Construction Technology; also defines and illustrates current methods of construction, researches the trends of building and reviews the history of this trade area.

**6002 Construction Tools and Skills 3**

Provides the students with opportunity to study various tools and become skilled in the operation, maintenance and safety factors of each.

**6003 Construction Materials 3**

Provides information about materials used in the building industry; includes in-depth study of the manufacturing process and systems of purchasing.

**6011 Floor and Wall Layout and Construction 3**

Develops necessary skills for laying out floor and wall systems, including how they are designed and constructed.

**6014 Electrical Wiring Fundamentals 3**

Studies basic electricity, including electron theory, Ohm's Law and proper use of electrical measuring instruments; also simple series and parallel circuits switching devices and fusing.

**6015 Residential Wiring 3**

Covers practice of residential wiring, including electrical service, metering equipment, lighting, switches, outlets and other components common to residential wiring, installation and maintenance.

**6020 Electrical Blueprint 3**

*Prerequisite: 6015*

Covers basic blueprint problems electricians encounter in a commercial building and develops skills necessary to translate blueprint information into proper methods of installation.

**6022 Plumbing - Design 3**

Covers plumbing techniques for working with pipe and fittings, how to rough in plumbing, install drainage, water systems, fixtures, water heaters, all within the scope of the plumbing code.

**6024 Plumbing Fundamentals 3**

Gives beginners clear understanding of the home plumbing system and how it works, including necessary tools, water supply systems, acceptable materials for water, drainage, fixtures and many items of code.

**6025 Plumbing Blueprint 3**

Develops skills to read, understand and interpret blueprint (residential plans), including symbols, using an architect's scale, pipe drawing and isometric pipe layout.

**6026 Advanced Skills in Masonry 3**

*Prerequisite: 6036*

Covers building of corners, wall reinforcing, masonry supports, chases, small one-flue chimneys, corbelling and wallcopings, with emphasis on residential veneering, cavity wall construction, concrete reinforcement, and special finishes.

**6031 Electrical - Commercial Wiring 3**

*Prerequisite: 6014, 6015*

Introduces wiring methods and materials in conformance with the National Electrical Code; covers basic fundamentals of mechanical and electrical installations with emphasis on tool usage and material selections.

**6036 Masonry and Concrete Fundamentals 3**

*Prerequisite: 6002, 6003*

Covers materials and methods of construction, building layout, preparation of building site, footings and foundations, wall construction, including form construction and erection; emphasis on basic tools and materials used in masonry field, physical properties of brick and concrete block.

**64 Electronics Communications****6412 DC Fundamentals I 3**

Provides working knowledge of electrical principles and laws in DC circuits, voltage, current and resistance relationships on an applied basis; also stresses component identification and proper use of lab test equipment.

**6413 Fabrication 3**

Provides practical experience in techniques of electronic construction, fabrication and assembly, with emphasis on proper care and use of shop tools and test equipment.

**6414 DC Fundamentals II 3**

A continuation of DC Fundamentals I (6412) with introduction to inductance and capacitance.

**6420 Introduction to Data Processing and Computers 3**

Includes both an overview of the technology of data processing and computers, as well as the specific electronic components and circuitry.

**6423 AC Fundamentals I 3**

*Prerequisites: 6412 & 6414*

Introduces AC circuit principles with emphasis on impedance and phase relationships.

**6424 Troubleshooting Techniques 3**

*Prerequisites: 6436 & 6438*

Studies techniques of logic trouble-shooting of electronic circuits and simple systems, with emphasis on systematic diagnostic method.

**6425 AC Fundamentals II 3**

*Prerequisites: 6412 & 6414*

Continues AC Fundamentals I (6423) with emphasis on resonant and AC filter circuits.

**6426 Electronics Drafting 3**

Studies techniques used in diagramming electronics circuits and systems, with emphasis on both proper techniques for drawing diagrams, as well as skill in reading and interpreting diagrams and electrical blueprints.

**6434 Introduction to Active Devices 3**

*Prerequisites: 6423 & 6425*

Introduces basic structure and principles of operation of vacuum tube and transistor devices.

**6435 Electronics Circuits I 3**

*Prerequisites: 6423 & 6425*

Studies use of active and passive components in power supply oscillator and amplifier circuits.

**6436 AM Radio 3**

*Prerequisites: 6434 & 6435*

Studies AM receiver principles and circuits, developing understanding of amplitude modulation and demodulation.

**6438 FM Radio 3**

*Prerequisites: 6434 & 6435*

Studies FM receiver principles and circuits, developing an understanding of frequency modulations, demodulation and multiplex.

**6445 Monochrome Television 3**

*Prerequisites: 6434 & 6438*

An in-depth study of television circuitry with emphasis on the principles of cathode ray tubes, scanning and synchronizing methods and video amplification. Includes principles of antennas and transmission lines.

**6446 Integrated Circuits 3**

*Prerequisite: 6447*

Introduces various classifications and categorizations of linear and digital integrated circuits.

**6447 Special Semi-Conductors 3**

*Prerequisites: 6434 & 6435*

Introduces theory and operation of semi-conductor devices other than bipolar transistor; also includes opto-electronic components, FETs and other special semi-conductor devices.

**6448 Color Television 3**

*Prerequisites: 6436 & 6438*

Studies specialized principles and circuits used in color television receivers, emphasizing similarities and differences between color and monochrome.

**6450 Television Troubleshooting 3**

*Prerequisites: 6445 & 6448*

Provides advanced level of skill development in diagnostic procedures, with emphasis on service procedures and installation and adjustment of color and solid-state TV receivers.

**6454 Electronics Circuits II 3**

*Prerequisites: 6434 & 6435*

Continues Electronics Circuits I (6435) with emphasis on pulse and logic circuit fundamentals, including basic waveforms of the nonsinusoidal variety frequently used in pulse and logic circuits.

**6455 Circuits Analysis 3**

*Prerequisites: 6423 & 6425*

Consists of circuits and systems analysis using equivalent circuit principles and theorems.



## **65 Electronics Technology**

### **6525 Introduction to Test Equipment 3**

*Prerequisites:* 6412 & 6414

Introduces the proper use of lab and shop test equipment for troubleshooting purposes.

### **6538 Rotating Machines I 3**

*Prerequisites:* 6434 & 6435

Introduces common industrial rotating machines, both single and polyphase.

### **6539 Rotating Machines II 3**

*Prerequisites:* 6434 & 6435

Continues Rotating Machines I (6538) with emphasis on power distribution.

### **6543 Basic Industrial Electronics 3**

*Prerequisites:* 6538 & 6539

Studies characteristics of various transducers and their applications.

### **6544 Introduction to Industrial Controls 3**

*Prerequisites:* 6538 & 6539

Studies power switching and controlling devices including thyristors and thyatrons.

### **6553 Industrial Electronics I 3**

*Prerequisite:* 6543

Continues Introduction to Industrial Controls (6544) with emphasis on systems and circuits.

### **6554 Industrial Electronics II 3**

*Prerequisite:* 6543

Studies process controls and service systems.

### **6562 Digital Principles I 3**

*Prerequisite:* 6446

Introduces basic combinational logic through use of Boolean algebraic expression.

### **6563 Digital Principles II 3**

*Prerequisite:* 6446

Continues Digital Principles I (6562) with emphasis on counters, clocks, registers and arithmetic circuits.

### **6577 Digital Principles III 3**

*Prerequisites:* 6562 & 6563

Studies advanced digital systems, including memory and D A and A D conversion.

### **6578 Digital Applications 3**

*Prerequisites:* 6562 & 6563

Studies interfacing and uses of various digital devices, circuits and systems.

## **71 Heating, Air Conditioning & Refrigeration**

### **7111 Heating Fundamentals 3**

Covers fundamentals of the heating phase of air conditioning; includes types of heating systems, combustion process, heat flow, temperature measurements, fuels and basic control devices.

### **7113 Basic Electricity for Air Conditioning 3**

Covers basic electricity, including theory of current flow, Ohm's Law, current voltage and resistance measurements, proper use of electrical measuring instruments; also includes switching circuits, magnetism, transformers, fusing and wire sizing, series, parallel and combination circuits and an introduction to pictorial and schematic wiring diagrams.

### **7114 Basic Mechanics and Shop Techniques 3**

Introduces safe and proper use of tools and torches used to install copper tubing and steel piping; also includes selection of proper materials for specific application to soldering, brazing and basic oxyacetylene gas welding apparatus. Bending electrical conduit, pipe cutting and threading included.

### **7123 Air Conditioning and Refrigeration Fundamentals 3**

Introduces study of the compression system used in mechanical refrigeration and air conditioning, including refrigeration cycle, compressors, receivers, evaporators, condensers, metering devices, refrigerants and their identification; also includes temperature conversions, absolute temperature, gas laws and an introduction to basic mechanical service procedures used through the industry.

### **7124 Heating Service (Gas and Oil) 3**

Covers gas and oil heating units for residential applications, including methods used in analyzing mechanical and electrical problems on residential equipment, and pictorial and schematic diagrams applicable to residential heating units.

### **7125 Motors and Motor Control 3**

Covers various types of motors, including single phase capacitor start, capacitor start and run, shaded pole, tap wound and 3-phase; introduces procedures to select proper motor for a specific application, and diagnosis of motor problems, with emphasis on motor control and protective devices.

### **7126 Air Conditioning and Refrigeration 3**

Continues Air Conditioning and Refrigeration Fundamentals (7123), compressors, condensers, receivers, metering devices, evaporators, and other system components. Includes a continuation of the basic mechanical service procedures used throughout the industry.

### **7127 Heating Service (Electrical & Hydronic) 3**

Covers various electric and hydronic heating systems used in residential applications; also covers methods used in analyzing electrical and mechanical problems in residential heating units, including study of control systems and pictorial and schematic diagrams.

### **7133 Cooling Service (Electrical) 3**

Covers service procedures for residential air conditioning systems and low voltage (24 volts) control wiring with emphasis on schematic and pictorial wiring diagrams.

### **7134 Cooling Service (Mechanical) 3**

Continues Cooling Service (Electrical) (7133) troubleshooting, procedures for cleaning up a system after compressor burnout, also covers suction and liquid line filters and strainer-dehydrators.

### **7135 Electrical Circuits and Controls 3**

Covers electrical controls, gas controls, oil controls, cooling controls and system controllers; includes operation of individual controls and how they are integrated into control systems.

### **7136 Psychrometrics 3**

Covers methods of estimating heat loss and heat gain in commercial and industrial work, plus use of psychrometric chart in calculating air qualities and quantities, with emphasis on selection of equipment, coil sizing, blower sizing and duct sizing; includes study of ventilation systems.

### **7137 Heat Loss and Gain Calculations 3**

Covers methods used in calculating heat loss and gain in sizing units for residential application, including methods used to reduce energy consumption in residences.

### **7143 Blueprint Reading 3**

Covers reading blueprints common to the trade, including floor plans, elevations, sections, details, plot plans and mechanical plans, including making tracings of blueprints and developing layouts of air conditioning systems; also covers use of symbols, notations and schedules on drawings, emphasizing proper lettering techniques, neatness and clarity in drafting. Specialized course for heating and air conditioning students.

### **7144 Commercial Refrigeration 3**

Covers light commercial air conditioning and refrigeration systems, including medium and low temperature applications; also covers refrigeration accessories, metering devices, mechanical and electrical controls. Also includes an introduction to electrical and hot gas defrost systems.

### **7145 Heat Pump Service 3**

Covers heat pumps used in residential applications including various types of systems, system control, balance points, C.O.P. ratings and pictorial and schematic diagrams.

### **7146 Advanced Cooling Service 3**

Covers methods of trouble-shooting electrical and mechanical components used in central air conditioning systems.

### **7153 Advanced Commercial Refrigeration 3**

Continues Commercial Refrigeration (7144) including work with heavy commercial equipment, with emphasis on metering devices, accessories and advanced control arrangements; stresses trouble diagnosis and safety precautions in dealing with refrigerants and heavy equipment.

### **7154 Duct Fabrication and Installation 3**

Covers duct work layout, fittings and fabrication of duct and fittings from students' layouts, including proper use of hand tools of sheet metal trade, and shop equipment used for fabrication of ductwork and fittings.

### **7155 Specifications and Estimating 3**

Covers job and equipment specifications and engineering data, with students using blueprints and specifications to "take-off" a job to arrive at costs of materials, labor, and equipment. Business principles such as overhead job related costs, labor cost plus fringes, warranty coverages, taxes, permits, sub-contracts, and mark-ups and margins will be studied. Estimating of service contracts and maintenance contracts will be covered. AIA documents will be studied.

### **7162 Specialized Environmental Systems I 3**

Covers special systems encountered in the field including heat pumps of all types, solar systems, electrohydraulic systems, and heat conservation and heat recovery systems. Temperature and humidity control systems will be studied.

### **7163 Air Distribution System Design 3**

Covers methods used to size duct work for residential application, making working drawings of duct systems; also covers various types of duct systems used in residential applications.



- 7165 Advanced Electrical Controls 3**  
Covers control systems beyond ordinary residential and single-state commercial jobs, including an introduction to electronics and solid-state controls, zoning control, modulating controls used in larger systems, refrigerant flow, low-ambient controls, heat recovery, and economizer control arrangements.
- 7169 Advanced Electrical and Electronic Controls System II 3**  
An advanced commercial heating and air conditioning controls course, dealing with the theory and fundamentals of electronic controls and special applications of solid-state controls. Single zone, multi-zone, and variable air volume systems will be studied. Emphasis will be placed on integrated economizer systems. Load management and its cost effectiveness will be studied.
- 7174 Service Organization and Management 3**  
Covers operation of service department, including taking of service calls and dispatching of servicemen, personnel recruitment and training, truck maintenance, stocking and routing of trucks, including proper handling of service tickets, pricing procedures, and collection practices; also covers warranty parts and procedures, service department overhead items, customer relations, advertising costs and service contracts.
- 7175 Equipment Sales 3**  
Covers sales techniques and procedures, the profession of sales-engineering, the role of manufacturers' representatives and marketing. Students will write quotations and proposals, formulate and write service contracts and study compensation plans for salesmen.
- 7176 Applied Design 4**  
Students integrate and use knowledge gained to design complete air conditioning systems. Students will analyze a given job, calculate heat losses, and gains, select equipment, layout distribution systems, make working drawings, and calculate operating costs and maintenance costs. Proper design and sizing of refrigerant piping, cooling tower piping and chilled water-hot piping will be studied.
- 73 Industrial Maintenance**
- 7341 Basic Hydraulic Pneumatic Principles 3**  
The fundamentals of fluid power and the components are covered as to principles, function, terminology, repair and use. Study of machine tool circuits is used to make application.
- 75 Industrial Drafting**
- 7510 Basic Drafting 3**  
This course introduces the beginning drafting student to equipment usage, lettering, sketching, measurement, geometric constructions, multiview projection drawings, and basic dimensioning fundamentals.
- 7511 Intermediate Drafting 3**  
This course is a continuation of the beginning drafting principles learned in Basic Drafting 7510, with emphasis on more in depth understanding of dimensioning and multiview orthographic projections.
- 7520 Descriptive Geometry 3**  
This course instructs the student on how to develop graphical solutions to engineering problems. Areas covered include auxiliary views, successive auxiliary views, true length of lines, true shapes of planes, and edge views of planes.
- 7521 Industrial Processes and Systems 3**  
This course offers the student an opportunity to become familiar with manufacturing processes, equipment, selection of materials, and capabilities of modern machine tools. Basic methods of fabrication as well as measurement and gaging devices to insure their accuracy are also studied.
- 7522 Production Drawing 3**  
This course introduces the student to sectioning techniques, advanced dimensioning, tolerancing, and typical machining notations.
- 7528 Introductory Drafting for Heating and Air Conditioning 3**  
A basic drafting course which involves lettering, linework, isometric drawings, duct layout and detailing. This course will emphasize good draftsmanship along with good design and is intended to further the drafting skills of the Heating and Air Conditioning Technician as well as improve blueprint reading skills.
- 7529 Introductory Drafting for Machine Tool 3**  
An introductory course in mechanical drafting which involves lettering, isometric drawing, orthographic projection, sectioning, dimensioning, and tolerancing. This course is intended to develop an understanding between the draftsman and machinist, as well as reinforce blueprint reading skills.
- 7530 Product Drafting I 3**  
This course introduces the student to the "set" concept of working drawings (detail drawings and assembly). Fastening devices, misc. hardware, symbols and nomenclature, surface texture symbols, weldment symbols, basic tolerancing and classes of fits are also covered. The uses of title blocks, part lists, and revision blocks are introduced at this level.
- 7531 Mechanisms and Machines 3**  
A non-calculus presenting practical solutions to mechanical design problems. A method of graphical analysis is incorporated in the design of mechanisms.
- 7532 Tool Drafting 3**  
This course introduces the drafting student to "tooling" - jigs, fixture, and gauges necessary to improve manufacturing efficiency, accuracy and productivity.
- 7533 Die Design Drafting 3**  
This course introduces the student to die design as it pertains to the punch press and stamping industry.
- 7540 Product Design Drafting 3**  
This course helps to enlighten the drafting student to good design characteristics, including need, function, esthetics, and economy. Emphasis is placed on design utilizing standard purchasable hardware.
- 7541 Advanced Tool & Gage Design Drafting 3**  
This course continues the study into jig and fixture design as pertains to the interchangeability and close tolerancing required for products in industry. Power clamping, computerized numerical control (CNC), and robotics will also be discussed.
- 7543 Technical Illustration 3**  
This course introduces the student to isometric and oblique pictorial drawings. From basics learned, the student then is instructed on how to illustrate a multipart assembly in an "exploded" pictorial drawing. Basic methods of shading are also introduced.
- 7545 Product Drafting II 3**  
The student in this course must develop and redesign a product, which because of "need change" has become obsolete. Special attention must be given to solving this problem utilizing standard purchasable materials.
- 7547 Electronics Drafting 3**  
This course introduces the student to inking as a means of drafting communication. The student will be taught the proper symbols for electronic components, and how to arrange them to represent a schematic. Printed circuit board layouts, drill layouts and charts are also studied.
- 7548 Geometric Dimensioning & Tolerancing (GDT) 3**  
This course is an introduction to Geometric Dimensioning and Tolerancing. GDT is a method of specifying engineering design, drawing, and specification requirements with respect to the actual function and relationship of part features, symbolized through accepted governmental symbolizations.
- 7550 Gear & Cam Drafting 3**  
This course offers the student an opportunity to study and draw the various types of gears and their individual functions. They will also be given instruction on cam design and its conversion of rotary motion into linear.
- 7552 Strength of Materials 3**  
The basic design principles of various materials and their reactions to loads and conditions involving mathematics calculations required for design and material selection.
- 7557 Jig & Fixture Design Drafting 3**  
This is the second class in the jig and fixture curriculum. In this course, the student will be challenged to solve a jig fixture problem from its beginning stages. The course emphasizes the use of standard purchasable hardware and design economy as a means to a justifiable solution.
- 7558 Sheet Metal Drafting 3**  
This course offers the drafting students an opportunity to apply prior-learned skills from Descriptive Geometry in the development of sheet metal forms. The student will develop intersecting planes between geometric shapes.
- 7560 Machine Design Drafting 3**  
This course is a study of the design of machines as "tools" of production. The use of hydraulics and pneumatics in actuating and controlling automated machines is the major emphasis.
- 7573 Industrial Design Presentation 3**  
This course provides the student with an opportunity to utilize all previously acquired knowledge in product drafting to the design of a new or existing consumer product. The student will consider the function, esthetics, cost economics, and marketability of the product. This course in particular will require in-depth research, product analysis, preliminary sketches, and a final design layout presentation.
- 7574 Industrial Design Detail 3**  
This course is a continuation of 7573. The student will develop his newly designed product to the production stage, with emphasis on detail working drawings and a final assembly drawing.
- 7578 Piping Fundamentals 3**  
This course introduces the student to the basic piping fundamentals regarding residential and industrial plans. Plan views, elevations, sections, and isometric fabrication techniques are presented utilizing industrially acceptable symbolizations.

**7581 Facilities Planning 3**

This course introduces the student to industrial plant layout through the study of materials handling, staging, and prestaging concepts, warehousing, machining and assembly areas and their relationship to existing utilities. Main emphasis is on the redesign of existing facilities to accommodate necessary production control changes.

**77 Machine Tool****7710 Basic Machine Tool Introduction 3**

This course introduces the student to basic machinery operations and theory. Hole lay-out and machinery, milling machines and band saws are utilized.

**7711 Basic Machinery Fundamentals 3**

In this course, the student learns cutting tool geometry, basic lathe operations and use of standard shop measuring devices.

**7712 Machining Fundamentals 3**

This course utilizes screw threads to give the student further experience in shop processes and mathematics. Also machine accessories are introduced to broaden the student's skills.

**7720 Machine Tool Processing 3**

This course deals with advanced lathe skills and includes mathematical calculations involving the inspection of workpieces.

**7721 Machine Tool Set-up and Operation 3**

This course deals with advanced milling machine skills and precision hole locating and machinery. Also included is an introduction to high volume material removal.

**7730 Advanced Machine Tool Processing 3**

This course builds on previously acquired skills of machinery precision finishes and tolerances. Various types of grinding machines and operations are introduced.

**7731 Basic Print Reading 3**

Interprets machine shop symbols, stock lists, shop blueprints to dimensions, shapes, fabrication and assembly, with basic mathematics applied to solving print and performance problems.

**7733 Advanced Machine Tool Set-up 3 and Operations**

In this course, the student is introduced to methods of grinding precision radii on workpieces. Included also are the basics of operations of grinding machine. The student also is introduced to cutter grinding and sharpens an end mill to maximum efficiency.

**7740 Specialized Machine Tool Theory 3**

In this course, the student studies nomenclature and basic design of gears and cams. The student utilizes previous machinery skills in machining a functional spur gear. The broaching process is employed by producing a key slot in the gear I.D.

**7742 Specialized Machine Tool Applications I 3**

This course includes operations of contour and radius grinding (internal and external) and precision location and jig boring of holes. Also included are theory and application of electrical discharge machinery.

**7743 Specialized Machine Tool Application II 3**

Applies differential indexing gear cutting and cam milling; applies tracer design and application to project completion; includes required mathematics.

**7744 Machinery Handbook I 3**

This course teaches or reviews the effective methods of using any reference volume. This skill provides some substitute for the years of experience that aid the skilled craftsman.

**7750 Tool Fabrication I 3**

In this course, the student develops a manufacturing process of an assigned mechanism. The student will consider materials and processes available for use and the time factor for completion.

**7751 Tool Fabrication II 3**

Working from an approved manufacturing process and blueprints, the student will machine all component parts of an approved mechanism to print dimensions and tolerances.

**7752 Mechanism Design I 3**

In this course, the student studies and researches various mechanical movements and mechanisms. The student will consider the feasibility and degree of complication of a particular movement and incorporate it into a workable mechanism. The mechanism will be drawn as a sketch and the instructor will decide if it meets the minimum challenge of the student resources, and yet is not so elaborate as to extend beyond the allotted time in subsequent classes for finish drafting and construction.

**7756 Tool Fabrication III 4**

In this continuation of building a working mechanism, the student works with precision fits and alignment of mating parts and assembles a mechanism to perform a predesigned function.

**7758 N/C and Auto Processing I 3**

This course introduces the student to basic Numerical Control programming and machinery. Actual control tapes are made and projects are machined to predetermined specifications. Computer aided machinery (CAM) is discussed and demonstrated.

**7759 N/C and Auto Processing II 3**

This course deals with computerized numerical control machining (CNC). The student programs, trouble-shoots, and machines assigned projects which fully utilized the equipment's potential.

**7761 Plastic Molding Fundamentals 3**

Covers composition and characteristics of various plastic materials studying design factors of compression, transfer and injection molds along with mold components, heating and cooling principles and application as applied to designing and maintaining a functional mold tool.

**7762 Precision Measurement 3**

This course covers the field of precision instruments, tools and gages used in layout and inspection work. The importance of quality control is also stressed.

**79 POLLUTION TREATMENT****7913 Introduction to Environmental Control 4**

Overviews the entire pollution problem relating each type of pollution, including water, air, population, solid waste, radiation and noise, and their relationships; also overviews the global environment dilemma confronting mankind and man's impact on the environment.

**7915 Applied Chemistry I 3**

Consists of intensified laboratory training program in proper performance of various chemical analyses for awareness of tests and procedures necessary to comply with state and federal wastewater effluent standards with tests including DO, BOD, COD, pH, suspended solids and chlorine residual, plus sampling technique and flow measurement.

**7916 Environmental Seminar 1**

Presents papers and group discussions developing environmental awareness through intensive monitoring of all communications media.

**7926 Applied Chemistry II 3**

Consists of intense laboratory training program in proper performance of various chemical analyses necessary to comply with state and federal water quality standards, including theory and laboratory techniques for alkalinity, hardness, turbidity, acidity, nitrates, ammonia, phosphates, grease and oil, cyanide and phenols tests.

**7934 Basic Hydraulics 4**

*Prerequisite: 8204*

Familiarizes students with elementary engineering aspects of water supply and distribution and wastewater collection, removal and disposal, including introduction to study of closed conduit and open channel flow, stream flow, runoff and pump characteristics.

**7942 Applied Microbiology 3**

Consists of intense laboratory training program in areas of applied water and wastewater microbiology and microbiology of milk and food, including total and fecal coliform, total plate count, milk and food inspection.

**7943 Water Supply and Treatment 4**

*Prerequisite: 7926*

Studies basic principles of water purification including coagulation, sedimentation, chlorination, treatment chemicals, taste and odor control, bacteriological control design criteria, maintenance programs and operational programs; studies new processes and recent developments and features field trips.

**7945 Equipment and Maintenance I 3**

Presents theory of basic electricity and electronics, and use and maintenance of laboratory equipment, instrumentation, electrical systems and motors, with emphasis on methods of troubleshooting and attitudes of safety.

**7946 Applied Research I 2**

Consists of students researching an area of interest in air or water pollution field, presenting a paper about the research.

**7951 Reporting and Purchasing 2**

Studies recordkeeping, reporting and purchasing practices necessary for efficient operation of an air or water pollution control facility.

**7952 Management and Supervision Procedures 4**

Studies effective skills necessary to understand human motivation and behavior, with emphasis on improving individual attitudes, productivity and morale in working situations; includes hiring, orienting and dismissing employees, handling emergencies, maintaining operational control, specific aspects of public relations and image development.



**7954 Plant Operations I - Municipal 4***Prerequisites: 7926, 7934*

Studies elementary engineering aspects of design, operation and maintenance of wastewater treatment plant, including design parameters for all processes, materials used and their purposes, type and operation of equipment, maintenance of plant and equipment, and typical solutions to specific operational problems; features field trips and co-op training.

**7956 Applied Research II 3**

Consists of students researching an area of interest in air or water pollution, and presenting a paper regarding the research.

**7957 Community Sanitation 3**

Introduces protection of health and promotion of human comfort and well-being through control of man's environment; including communicable diseases, solid wastes disposal, milk and food sanitation, disinfectants and insecticides, insect vector and rodent control, institutional sanitation and occupational health; features field trips.

**7958 Equipment and Maintenance II 3**

Consists of lectures and "hands-on" type experience with use of maintenance of mechanical equipment; including pumps, valves, blowers, lift stations, feed systems, plant grounds, building and tanks, with emphasis on proper attitudes of maintenance and maintenance programs.

**7959 Water Distribution 3**

Familiarizes students with elementary engineering aspects of water supply and distribution including pumping, storage, metering, pipe installation and maintenance, chlorine handling and safety, and public relations.

**7960 Air Pollution Control I 4***Prerequisites: 7926, 7942*

Studies fundamentals of air pollution control including history of air pollution, effects, air pollutants and their sources, meteorology and air pollution, basic concepts in thermodynamics, air quality criteria, particulates, sulfur oxides, nitrogen oxides, hydrocarbons, photochemical oxidants, process types, industries and agencies, applicability of federal, state and local regulations, inspection and enforcement; features field trips.

**7961 Plant Operations II - Municipal 3**

Studies special processes of advanced wastewater treatment with emphasis on ammonia and phosphorous removal, carbon absorption, filtration, disinfection and coagulation.

**7963 Plant Operations III - Industrial 3**

Studies special problems of industrial wastewater treatment with emphasis on major classifications of liquid industrial wastes and their treatment; including neutralization, equalization, proportioning, removal of troublesome solids and cyanide, and chromium treatment; features field trips.

**7964 Plant Mathematics 4***Prerequisite: 8204*

Emphasizes problems involving wastewater processing and process control, laboratory and efficiency calculations, with special emphasis on proficiency in performance of basic mathematical skills and development of adeptness for treatment plant calculations.

**7965 Wastewater Treatment 4****Operator Training Course**

A study of basic principles of water purification including: aeration sedimentation, rapid sand filtration, chlorination, treatment chemicals, taste and odor control, bacteriological control, mineral control, design criteria, maintenance programs and operational problems. New processes and recent developments are studied. Criteria, rules, regulations, forms and records associated with the field are considered. Also emphasizes the elementary engineering aspects of wastewater treatment plants and includes specific topics on: design parameters for all processes; materials used and their purposes; type and operation of equipment; maintenance of plant and equipment, and typical solutions to specific operational problems. Electrical wiring of motors and control circuits and their associated troubleshooting techniques are also studied.

**7966 Hazardous Materials 2**

Includes explosive, combustible, corrosive, toxic and radioactive substances in course designed to review basic chemistry of new and dangerous products of modern civilization.

**7967 Occupational Orientation 2**

Develops environmental awareness through intensive monitoring of all communications media, with guest speakers and films introducing students to opportunities in environmental fields of wastewater, water, air, health, noise, etc., developing concern involvement, knowledge of environmental problems and career opportunities through group discussion.

**7968 Maintenance of 4****Collection Systems**

Studies methods and reasons for operation and maintenance, inspection, testing, cleaning, repairs, etc. to the sewer collection system. Includes operation and maintenance of lift stations, safety, and administrative record controls.

**7969 Secondary Treatment 3****Process Controls**

Consists of detailed study of operational controls and tests necessary for the efficient operation of activated sludge, trickling filters, and other secondary wastewater processes.

**7970 Air Pollution Control II 3**

Studies theory and laboratory techniques for ambient air quality sampling and source sampling, including definition of air pollutants, sources and occurrences, sample collection, equipment used for collection, maintenance of laboratory equipment, calculation, and interpretation of results; features field trips.

**7972 Environmental Administration 4**

Studies structure of present decision-making, including federal, state, local governments and private sector, relative to the environment; introduces fundamentals of environmental law.

**7973 NPDES Workshop 2**

Consists of intensified laboratory training program in the proper performance of various chemical and biological analyses to develop the capability for compliance with state and federal water quality and effluent standards. Operators are expected to attain skills to competently conduct laboratory analyses for BOD, DO, chlorine residual, suspended solids, pH, fecal coliform and flow measurement, and to maintain necessary equipment for these analyses.

**7974 Phosphorous Removal Workshop 2**

Designed to equip students with an awareness of the importance of phosphorous removal and with skills to calculate the amount of chemicals to be used, monitor point(s) of application of chemicals, effectively evaluate operating system for phosphorous removal, and conduct tests indicating efficiency of phosphorous removal. Also includes background information on basic design considerations for such removal systems, different chemicals available for phosphorous removal, maintenance of equipment involved, and record keeping. Designed for operators and chemists of wastewater treatment plants requiring phosphorous removal, now or in the future.

**7975 Basic Laboratory Skills 2**

Emphasizes development of basic laboratory skills including identification, care and use of laboratory equipment and glassware; also includes laboratory safety, sampling techniques, solutions and dilutions, ordering and maintaining an inventory of supplies and equipment.

**7976 Metal Analysis Workshop 2**

An intense program in proper sampling and preservation techniques of samples for metal analyses, preparation of standard solutions, preparation of samples for analysis, and use of atomic absorption spectrophotometer.

**80 Welding****8001 Gas Welding I 3**

Provides basic knowledge in oxy-acetylene welding, with devotion to detailed study of techniques of making welds in all positions, with instruction in gas welding, brazing and flame cutting; provides additional background information essential to qualified gas welders through lecture and discussion.

**8006 Basic Metallurgy 3**

Studies properties and uses of ferrous and non-ferrous metals and alloys, production of iron and steel, composition and properties of plain carbon steel and alloying elements, selection of tool case hardening, destructive and nondestructive testing; includes fundamentals of heat treatment and reactions that occur in metals subjected to various heat-treatment methods and techniques.

**8010 Arc Welding I 3**

Covers welding in ferrous metals and alloys using shielded metal arc welding methods, including techniques in flat and horizontal positions, and single pass and multipass techniques; also safety hazards and safe practices in arc welding.

**8013 Blueprint Interpretation 3**

Studies basic fundamentals of blueprint interpretation as applied to welding trade, including metal structures, specifications and assembly drawings, interpretation of blueprints which show job applications and their relationships with specific attention given to special forms of dimensioning and section views.

**8022 Electrical Fundamentals of Welding 3**

Studies relationship between voltage, current and resistance in electrical circuits with emphasis on use of high-current transistors in AC and DC circuits; includes special emphasis on production of heat as result of current flow through resistance.

**8024 Welding Blueprint Interpretation 3**

Includes advanced fundamentals of blueprint interpretation dealing with welding symbols and significance in the welding trade, with emphasis on process symbols, finish symbols and methods of finish.

- 8030 Basic Mine Welding 4**  
Welding techniques and materials used in the mining industry; welding with low hydrogen types of electrodes, hardsurfacing operations and pre-employment testing are taught.
- 8031 Gas Tungsten Arc (TIG) Pipe Welding 4**  
Techniques of welding pipe in all positions with the Gas Tungsten Arc (TIG Helicar) process are taught. Electrodes, joint design, fit-ups, and filler wires are included.
- 8035 Welding Fabrication I 5**  
Covers the basic principles of layout, measurement, and joint designs used in fabrication of steel and/or aluminum products; involves construction of simple individual and/or group projects using tolerance and fit-up of metal products. Safety in fabrication is also covered.
- 8036 Welding Fabrication II 5**  
Covers advanced principles of layout, measurement, and joint designs used in fabrication of steel and/or aluminum products; involves construction of advanced individual and/or group projects using tolerances and fit-up of metal products. Safety in fabrication is also covered.
- 8048 Occupational Safety and Health Act (OSHA) for Welding 4**  
Breaks down Indiana Occupational Safety and Health Standards to aid in understanding without having to read entire set of standards; teaches about employer and employee rights and responsibilities, rules or standards that must be complied with, inspections by Compliance Safety and Health Officers, violations, citations, penalties, variances, appeals, record keeping, and state and federal safety and health programs, with each topic amplified in detail.
- 8053 Pipe Welding I 5**  
Techniques of welding pipe in the horizontal (2G) and the flat, vertical up and overhead (5G) positions with S.M.A.W. process are taught. Electrodes, joint design and fit-up are included in the instruction.
- 8054 Pipe Welding II 5**  
Techniques of welding pipe in the flat, vertical up and overhead (6G) positions with the S.M.A.W. process. Electrodes, joint design and fit-up are included in the instruction.
- 8064 Welding Practice for Auto Body I 3**  
Introduces basic welding processes with emphasis on safety and procedures pertaining to automotive body repair area, including special welding techniques required in auto body repair area, using materials and common applications of this field.
- 8065 Welding Practice for Agricultural Equipment 3**  
Introduces basic welding with emphasis on safety and procedures as pertain to agricultural equipment area, including special welding techniques required in agricultural equipment using materials and common applications of this field.
- 8066 Welding (Non-Majors) 3**  
The basic principles of oxy-acetylene and arc welding with welding applications emphasis, custom designed to meet the needs of the various instructional program objectives, are taught.
- 8074 Welding Equipment Maintenance 4**  
The design, construction, theory of operation, diagnosis, troubleshooting, and maintenance of oxy-acetylene gas and arc welding equipment, with emphasis on the operations of gas metal arc (MIG) and gas tungsten arc (TIG) equipment, are taught.
- 8076 Welding Practice for Auto Body II 3**  
Continues course 8064
- 8090 Shielded Metal Arc Welding I 5**  
Covers welding in ferrous metals and alloys using shielded metal arc welding methods, including techniques in flat positions and horizontal, single pass and multipass techniques; also safety hazards and safe practices in arc welding.
- 8095 Shielded Metal Arc Welding II 5**  
Covers welding of ferrous metals and alloys using shielded metal arc welding methods; including techniques in vertical-up and overhead positions, single pass and multipass techniques; with emphasis on safety hazards and safe practices in arc welding.
- 8096 Gas Metal Arc Welding (MIG) Welding 5**  
This phase of the welding program gives the student a thorough knowledge of the various welding processes, particularly metal inert gas welding. Specific attention is given to detailed study of the techniques of making welds in all positions and various thicknesses using the GMAW applications. Lectures and discussion provide additional background information essential to a qualified welder. The course is designed to acquaint the student with the various gas metal arc welding processes such as micro-wire, flux core, innershield and submerged arc. Specific attention is given to the techniques of welding with the various processes.
- 8097 Gas Tungsten Arc (TIG) Welding 5**  
This course involves extensive welding practice using the gas tungsten arc welding process. The student will be making welds on various metal thicknesses and types of metal in all welding positions.
- 8098 Welding Certification 4**  
Studies certification procedures necessary to qualify welders; includes qualification agencies, associations and societies, equipment standards and standard qualification procedures. Includes actual welding qualifications practices in shielded metal arc, TIG and MIG welding with students satisfactorily completing course qualifying in at least one of the above processes.
- 8099 Oxy-Acetylene Welding and Cutting 5**  
Provides basic knowledge in oxy-acetylene welding, with emphasis on detailed study of techniques of making welds in the flat horizontal, vertical and overhead positions. Also includes instruction brazing in flame cutting, safety hazards, safe practices in oxy-acetylene welding and cutting.
- 81 - 84 Related Education/ Developmental Studies**
- 81 Communications**
- 8110 Communications 4**  
Students achieve competence in a range of communications skills, with emphasis on writing.
- 8111 Business Communications 4**  
*Prerequisite: 8110*  
Students learn to handle communications situations in business and industry, with emphasis on oral and written communication problems. Students master various types of business writing, as well as the underlying psychology.
- 8112 Technical Communications 3**  
Students achieve competence in a range of communication skills, with emphasis on technical applications of writing skills.
- 8113 Oral Communications 4**  
Focuses on basic elements of the oral communication process, with applications to actual work situations including informative briefings, persuasive presentations, interviews, small conferences and other job-related problems. (May be used either as required or elective course.)
- 8114 Technical Reporting 3**  
*Prerequisite: 8110 or 8112*  
Students learn fundamental principles of written and oral reporting: a variety of reports, business letters and memoranda related to reporting are studied and practiced. (May be used either as required or elective course.)
- 8118 Effective Reading 2**  
Participants achieve higher level of reading speed while maintaining or improving current rate of comprehension and retention, using techniques for analyzing present reading ability and achieving greater efficiency and effectiveness.
- 8120 College Study Principles 2**  
Students learn strategies for success in college, including basic time management, effective reading, note taking and exam preparation.
- 8121 Interpersonal Communication 3**  
Students study and practice the dynamics of human relationships, with emphasis on strengthening the self and developing authentic communication with others in a work setting.
- 8123 Total Communication - Manual 4**  
The course is designed for the instruction and application of manual alphabet, expressive skills, receptive skills, body language, facial expression, grammatic expression and the psychology of deafness. The intended result is to have total communication skills with the deaf.
- 8124 Vocational Technical Vocabulary 4 for Deaf**  
The course is designed for the instruction and application of development of vocational vocabulary relative to each program involving deaf students and development of functional understanding of and skills for vocational technical vocabulary. The intended result is to prepare each student with a vocational technical vocabulary prior to entering a program.
- 8125 Career Exploration 1**  
The course is designed for the explanation of and orientation to the various occupational training programs offered at the college.
- 8126 Personal Management Skills 2**  
This class has been developed to help the deaf student who has just completed his education at the Deaf School and has had no opportunity to develop independent living skills. The class is designed to instruct the student in different phases of independent living skills that he/she has not been confronted with before.
- 8127 Technical Vocabulary 4 for the Deaf I**  
This course introduces to the deaf student a basic or core technical vocabulary for the program area of his/her choice. The terms, meanings, and signs are selected to give an overview of the entire program. The course is usually taken prior to actually enrolling in any program classes.
- 8128 Technical Vocabulary 4 for the Deaf II**  
This course is a continuation of Technical Vocabulary for the Deaf I.



**8129 Technical Vocabulary for the Deaf III 4**

This course is a continuation of Technical Vocabulary for the Deaf II.

**8130 Technical Vocabulary for the Deaf IV 4**

This course is the last course in the Technical Vocabulary for the Deaf sequence.

**8131 Total Communications - Manual II 4**

The course is designed for the instruction and application of expressive skills, receptive skills, body language, facial expression, grammatic expression, and the psychology of deafness. The intended result is to have expressive communication skills with the deaf.

**8132 Effective Communication (for the hearing impaired) 4**

Effective Communication is a business-oriented course consisting of a study of the various communication problems encountered by the deaf in the job-seeking process and on-the-job and how to solve them.

**8133 Independent Living Skills (for the hearing impaired) 4**

Practical applications of basic independent living skills as they apply specifically to the deaf.

**8134 Independent Consumer Skills (for the hearing impaired) 4**

This course is designed to teach practical application of basic consumer skills as they apply to the deaf consumer.

**8135 Total Communications III (for the hearing impaired) 4**

This course is designed for the instruction and application of expressive skills, receptive skills, conversational skills and presentation skills. The intended result is to have expressive and receptive skills.

**8136 Business Terminology for the Deaf 3**

This course is designed for the in-depth study of terminology associated with any business area and the development of a functional understanding of and skills for usage of business terminology.

**8137 Structure of the English Language 4 (for the hearing impaired)**

This is a course designed as a prerequisite for special needs for the students in Developmental Writing I (8151). This course will establish a foundation for successive communication courses.

**8151 Developmental Writing (Pre-Tech) 3-4**

Students learn the basics of writing by extensive experience with writing the sentence and paragraph. Exercises instill the necessary principles.

**8152 Developmental Reading I (Pre-Tech) 2-4**

Students develop basic reading skills to junior high school level, including vocabulary and comprehension skills.

**8153 Developmental Reading II (Pre-Tech) 2-4**

Students develop vocabulary and comprehension skills to high school level, with emphasis on learning to deal with textbook material.

**8154 Developmental Reading III (Pre-Tech) 2-4**

Develops vocabulary and comprehension while supporting reading skills in entry level program courses.

**8155 Intra-Personal Skills Development 4 (Pre-Tech)**

Provides strategies for helping students perceive themselves as adequate and valuable persons. Seeks to produce progress in student's perceived self-image, with emphasis placed on student's strengths; encourages each student toward increased self-direction.

**8156 Study Skills Development (Pre-Tech) 2**

Develops basic skills needed for classroom work: note-taking from lectures, textbook reading and outlining, test-taking, etc.

**8157 Communications Skills Development 3**

On an individualized self-paced basis, each student will cover writing, grammar and vocabulary development oriented toward his occupation.

**8158 GED Writing Skills Preparation 4**

Writing Skills Test I of the five-part GED test series is the test for which most candidates for a high school equivalency certificate need more preparation than for any other. A wider range of communication skills is tested than is covered in other classes offered by Ivy Tech.

**8159 Improving Your Handwriting 2**

A skills advancement course designed to improve the ability to write legibly. Especially recommended for those in clerical and health occupational areas. It will provide an individual diagnosis of the causes of poor penmanship and provide individualized instruction and guided practice in the technique of proficient handwriting.

**8160 Developmental Writing II 4**

Students learn more complicated sentence forms and the more advanced paragraph through extensive experience with the sentence and paragraph. Exercises instill the necessary principles.

**8162 Spelling 2**

Spelling, a laboratory course, is an intensive, personalized study of spelling concepts with learning reinforcement. The course design is flexible, providing remediation in sound/symbol relationship for the student with chronic spelling problems, or providing a higher degree of mastery over a broad range of spelling concepts for more advanced students.

**8163 Learning Development I 4**

The course is designed for individuals whose previous learning experiences and/or test scores in basic skills indicate a need for comprehensive testing and diagnosis of learning strength and weaknesses, development of an Individualized Education Plan (IEP) and intensive developmental training in personal management and basic learning skills.

**8164 English As A Second Language - 4 Level I**

English As A Second Language is for the low intermediate student. Through a variety of methods - conversation, tapes, drill, discussion, skits, etc. - the students raise their skill in speaking, listening, reading, and writing.

**8165 English As A Second Language 4 Level II**

Level II is for the moderate intermediate student.

**8166 English As A Second Language 4 Level III**

Level III is for the high intermediate student.

**8167 Language Skills Development 4**

Designed for students who require the development of very basic perceptual and cognitive skills as a foundation for further progress in the development of language skills. After a thorough diagnosis of weaknesses and strength of perceptual and cognitive skills related to language, the student will follow an Individual Education Plan (IEP) in an intensive and highly personalized program for the development of basic language skills.

**82 Mathematics**

**8201 Applied Mathematics I 4**

Reviews basic mathematics required for technically related fields; emphasis is on measurement, ratio, proportion, percent and formula evaluation.

**8202 Applied Mathematics II 4**

Continues study of basic mathematics, including equations, squares, square roots, distances, areas, volumes and right triangles.

**8203 Technical Mathematics I 4**

Introduces algebra through linear equations in one unknown, graphing, additional topics of powers of ten, scientific notation and the metric system.

**8204 Technical Mathematics II 4**

Continues 8203, covering systems of equations, factoring, fractional equations, quadratic equations and logarithms.

**8208 Geometry 3**

*Prerequisite: 8203*

Studies geometric topics as they relate to modern technology, including basic laws of geometry, polygons, solid geometry, properties of circles, constructions and right triangles.

**8209 Trigonometry 3**

*Prerequisite: 8203*

Studies trigonometric functions, the use of trigonometric tables and scientific calculators, solutions of problems involving right triangle and oblique triangle trigonometry, and graphing of trigonometric functions.

**8210 Statistics 3**

*Prerequisite: 8203*

Studies collection, interpretation and presentation of data, including measures of central tendency, binomial and normal distributions, hypothesis testing and probability.

**8211 Computer Mathematics 2**

Studies mathematics relevant to solution and simplification of computer programs, including number bases, logic and flowcharts.

**8212 Business Mathematics 4**

Studies basic business practices of banking and retail sales, including reconciliation statements, invoicing, simple interest, payroll and inventory; introduces metrics and number base.

**8213 Mathematics of Finance I 4**

*Prerequisite: 8212*

Continues study of topics of interest to the business manager: markup, taxes, compound interest; introduces statistics, depreciation and analysis of financial statements.

**8251 Arithmetic I (Pre-Tech) 2**

Studies arithmetic operations in whole numbers.

**8252 Arithmetic II (Pre-Tech) 1**

Studies arithmetic operations in fractions.

**8253 Arithmetic III (Pre-Tech) 1**

Studies arithmetic operations in decimals.



- 8254 Intermediate Arithmetic I (Pre-Tech)** 2  
Studies percents and their use.
- 8255 Intermediate Arithmetic II (Pre-Tech)** 1  
Studies ratios and proportions.
- 8256 Intermediate Arithmetic III (Pre-Tech)** 1  
Studies measurement, including English and metric.
- 8258 Elementary Geometry (Pre-Tech)** 2  
Introduces plane and solid geometry concepts.
- 8259 Elementary Trigonometry (Pre-Tech)** 2  
Introduces plane trigonometry concepts, with emphasis on right triangle trigonometry.
- 8267 Mathematics for Business I** 4  
The basic mathematics of business are applied, including those pertaining to banking transactions, retail and wholesale sales, interest, discounts, credit charges, commissions and the metric system of measurements.
- 8268 Mathematics for Business II** 4  
This course is a further study of the mathematics applied in business, including markup, payroll records, compound interest, depreciation, and financial statements. Also the topics of statistics and computer mathematics are introduced.
- 8270 Percent, Ratio, and Proportion** 1  
The student will study the basic concepts relating to percent, ratio, and proportion.
- 8271 Elementary Algebra** 3  
This course prepares students for entry into Technical Mathematics I (8203). It is directed toward students who have had no algebra previously and students who have had some algebra but who need a review before going into Technical Mathematics I.
- 8272 Mathematics Skills Development** 4  
Students develop very basic perceptual and cognitive skills as a foundation for further progress in the development of math skills. After a thorough diagnosis of weaknesses and strengths of perceptual and cognitive skills related to mathematics, the student will follow an Individualized Education Plan (IEP) in an intensive and highly personalized program for the development of pre-math and basic math skills.
- 8273 Basic Mathematics Review** 3  
An individualized review of the basic procedures in whole numbers, fractions, and decimals that are necessary for all more advanced mathematics. Students may complete their review as quickly as they are able to pass each of the nine tests.
- 8274 Ratio, Proportion and Measurement** 2  
Designed to give students a grasp of the numerical relationships expressed in ratios and proportions and their use in converting units of measure in both English and metrics. Use of formulas and the meaning of the metric prefixes are emphasized.
- 83 Science**
- 8301 Physical Science** 3  
Emphasizes energy sources and energy transformations; relates use of energy to effects on the environment and the human population. (For certificate and associate degree programs.)
- 8302 Mechanics** 3  
*Prerequisite: 8209*  
Studies machines and mechanisms with regard to their stability, movement, effectiveness, and construction.
- 8303 Heat, Light, and Sound** 3  
*Prerequisite: 8203*  
Studies utilization of heat, light and sound as energy forms with respect to their use in modern technology; emphasis on heat, transfer of energy and electromagnetic radiation.
- 8307 General Chemistry** 3  
Studies matter in all forms and reactions, as well as basic concepts of atomic structure, bonding, equilibrium, acid-base chemistry, solutions, and chemical calculations; also introduces principles of organic chemistry and biochemistry. Course emphasizes student expertise in laboratory techniques and analysis.
- 8308 General Microbiology** 3  
Addresses fundamental principles and techniques of microbiology, with emphasis on different types of micro-organisms, their nutrition and metabolism, and their beneficial and harmful relationships to man.
- 8353 GED Science** 3  
Introduces concepts in physics, chemistry and biology in preparation for the GED test.
- 84 Social Science**
- 8401 Human Relations** 4  
Concerns the qualities and characteristics which make us human; studies human behavior, motivation, relationships, and human aspects of work; places emphasis on personal awareness and application of concepts studied.
- 8402 Applied Psychology** 4  
Helps students discover and actualize unique capabilities and personal strengths in themselves and others, with emphasis on discovering, clarifying and affirming potential for living more fully in each individual.
- 8406 Employment Orientation** 2  
Investigates employment opportunities in general area of study of student's interest and enrollment, including interviews, study of occupational information and sources, exploration of job opportunities and research into specific jobs and fields.
- 8407 Career Preparation for Women** 2  
A seminar based upon self-assessment, planning one's job campaign, and the construction of a resume with preparation for the initial interview.
- 8408 Coping With Employment** 3  
The course is designed to help the student cope with the psychological and sociological constraints associated with the typical work setting.
- 8410 GED Social Science** 3  
Introduces concepts in social science in preparation for the GED test.
- 8411 Developing Personal Potentials** 3  
Aims toward improving employability and stability of trainees through development of personal potential.
- 8412 Career Assessment** 3  
Designed to assist people in developing decision-making skills in career planning and career management. Participants will undergo self-assessment and career development exercises and will be trained in resume preparation and job interviewing techniques. Recommended for persons preparing to enter the job market and for those considering a career change.
- 8450 Business Careers Development** 2  
Designed to assist students in matching their talents, skills, and interest with career opportunities in business. Students will develop and assess their own personal inventory and receive an orientation to the career programs at Ivy Tech.
- 8451 Introduction to the World of Work 2**  
A course directed toward the mental, social, educational and vocational development of the student. Primary goal is to assist the student in becoming marketable and successfully employed.
- 85 Field Study**
- 8501 Field Study**  
The student will be given a job assignment specifically related to the occupational area. The course should be a field project within the framework of actual working experience in industry or business.
- 93 Health Occupations - Related Courses**
- 9305 Technical Math for Health Occupations** 5  
Provides health occupations students with a basic course in technical mathematics, including a review of arithmetic, basic concepts of algebra, graphing geometry and logarithms, including also 12 hours of correlation problems specific to the students' technical fields.
- 9310 Pharmacology** 4  
The most common medications in current use are discussed according to body systems with emphasis on clarification, uses, routes of administration, dosages, interactions, incompatibilities, and side effects. Also addressed are special precautions, legal aspects, and patient education.
- 9311 Mathematics for Pharmacology** 2  
Presents basic principles of computation for administration of drugs.
- 9327 Nurse Aide Procedures** 6  
Prepares nurses' aides and orderlies with skills necessary to perform selected activities under direct supervision of the professional nurse. These include care of the patient unit, personal care of the patient, vital signs, admission procedures, nutrition and patient safety, nursing in specific disease conditions, employment practices and procedures and clinical experience.
- 9330 Survey of Anatomy and Physiology** 2  
Designed for students considering or beginning a health career program and would benefit from a comprehensive, short, concentrated course over the parts and functions of the human body. Each bodily system will be included with the listing of major structures and descriptions of important actions.
- 9332 Mathematics for Nurse Aide** 5  
This course is designed for those students who wish to enter a Health Occupation as a Nurse Aide - Home Health Aide. The fundamentals of mathematics concepts as related to health care are discussed.

**9349 Anatomy And Physiology 8**

Course content addresses the human body as an integrated unit, including anatomy, physiology, medical terminology and applications of physics, chemistry and microbiology. Students are introduced to the study of common diseases.

**9350 Medical Law And Ethics 2**

Presents ethics of medicine and medical practice, stressing legal requirements and implications to allied health professions.

**9351 Anatomy 4**

The principal anatomical elements or body parts of the human structure are identified and described as a component of the major systems constituting a living human. A laboratory experience is included to visualize and foster comprehension using similar structures found in the animal kingdom.

**9352 Physiology 4**

The major functions of the human body systems and organs are described in a healthy human to serve as a foundation for diagnosis and treatment of sick or injured individuals. Completing 9351, Anatomy, is a highly recommended prerequisite.

**9355 Medical Terminology 4**

This course addresses basic terminology required of allied health professionals. Greek and Latin prefixes are presented as well as suffixes, word roots and combining forms. Emphasis is on forming a solid foundation for a medical vocabulary, including meaning, spelling and pronunciation. Medical abbreviations, signs and symbols are included.

**9356 Disease Conditions 6**

This course addresses the basic concepts of disease, its causes, and the change in the body functions that occur, with special emphasis on functional disturbances, correlating patient symptoms to emergency and in-patient treatment.

**9358 Pharmacology 3**

Stresses classification of dosage of drugs, and interactions and incompatibilities; also includes drug administration, weights and measurements, and preparations, plus special precautions and legal aspects.

**9359 Cardiopulmonary Resuscitation 1**

Course content emphasizes proficiency in mouth-to-mouth breathing, mouth-to-nose breathing, and mouth-to-stoma breathing. Students will perform one resuscitation (CPR) for an adult, two resuscitations (CPT) for an adult and a CPR for infants or small children. Students will be able to care for choking adults and infants, conscious and unconscious.

**94 Apprentice****9413 Building Trades Blueprint Reading 3**

The study of all signs, symbols, dimensions and abbreviations necessary for the logical interpretation of simple construction blueprints.

# IVY TECH FACULTY

- Adolay, Barbara D.**, Chairperson of Hospitality Careers Program. B.A., Indiana University (1965); M.S., Purdue University (1979). Certified Instructor of Hospitality Management by the American Hotel and Motel Association. Teaching experience: 3 years.
- Alfrey, Duane**, Instructor in Welding Technology. Technical Certificate, Indiana Vocational Technical College (1976). American Welding Society Structural Welding Certification; State Mechanics License. Teaching experience: 3 years. Occupational experience in field: 5 years.
- Applegate, Norman**, Instructor in Heating, Air Conditioning and Refrigeration Technology. Certified Heat Pump Technician; Class A Licensed Contractor for Heating and Cooling. Teaching experience: 10 years. Occupational experience in field: 25 years.
- Baker, Michael W.**, Instructor in Auto Body Technology. Technical Certificate, Indiana Vocational Technical College (1976). Teaching experience: 7 years. Occupational experience in field: 12 years.
- Bankert, R. E.**, Senior Instructor and Chairperson of Small Business, Office Operations, and Marketing Programs. B.S., Illinois State University (1951). Teaching experience: 10 years. Occupational experience in field: 22 years.
- Bayt, Phyllis, M.**, Senior Instructor and Chairperson of Medical Assistant Program. R.N., St. Vincent Hospital School of Nursing (1957); B.S., Indiana University (1978). Teaching experience: 6 years. Occupational experience in field: 18 years. Co-author of Pharmacology Textbook: *Administering Medications*.
- Beeler, James B.**, Master Instructor in Management and Psychology. B.A., Indiana University (1961); M.S., Butler University (1967). Teaching experience: 19 years. Occupational experience in field: 14 years. Recipient, National Speaker's Association Award; Administrative Management Society Award.
- Browne, John J.**, Instructor in Machine Tool Technology. Vocational Certification, Indiana University-Purdue University at Indianapolis. Teaching experience: 8 years. Occupational experience in field: 21 years.
- Bryan, Randy**, Master Instructor and Chairperson of Trade & Technical Division. B.S., Purdue University (1971); M.S., Indiana University (1977). Teaching experience: 14 years. Occupational experience in field: 15 years.
- Bunting, Lawrence E.**, Senior Instructor in Computer Programming Technology. B.A., Indiana Central University (1960). Certification in Data Processing (C.D.P.). Teaching experience: 5 years. Occupational experience in field: 16 years.
- Calvain, Huey Paul**, Senior Instructor and Chairperson of Welding Technology. Certification, NOCTI; Member American Welding Society. Teaching experience: 7 years. Occupational experience in field: 13 years.
- Carroll, Edward T.**, Instructor in Electronics Technology. Certified Electronics Technician (CET, Wld#1). Teaching experience: 28 years. Occupational experience in field: 20 years. Co-author of book: *Photo/Symptom Guide To Solid-State Color TV Troubles*.
- Christensen, Beverly**, Senior Instructor in Practical Nursing. B.S. Baptist Bible College (1963); R.N., Kings County Hospital Center School of Nursing, New York (1966). Teaching experience: 10 years. Occupational experience in field: 17 years.
- Cinkoske, Bernadette**, Instructor in Computer Programming Technology. B.A., Indiana University (1964). Teaching experience: 3 years. Occupational experience in field: 6 years.
- Clippinger, W. Michael**, Master Instructor and Chairperson of Developmental Studies and Related Education. B.A., Indiana University (1967); M.A. Indiana University (1970). Teaching experience: 13 years.
- Collins, Edith**, Senior Instructor and Coordinator of Health Occupations Media Education Lab. B.S.N., Indiana University (1959); M.S., Indiana University (1972). Teaching experience: 14 years. Occupational experience in field: 20 years.
- Coons, Verna Jean**, Master Instructor and Chairperson of Practical Nursing. B.S., Indiana University-Purdue University at Indianapolis (1968); M.S., Indiana University-Purdue University at Indianapolis (1982). Teaching experience: 34 years. Occupational experience in field: 34 years.
- Darden, Loletta L.**, Instructor and Chairperson of Industrial Maintenance. B.S., Purdue University (1982). Occupational experience in field: 1 year. Vice-President of Society of Women Engineers, 1980-81.
- Darling, Michael**, Instructor Respiratory Therapy. A.S., Indiana University (1977); B.S., Indiana University (1980). Teaching experience: 5 years. Occupational experience in field: 9 years.
- Daughtery, Marvin L.**, Senior Instructor and Chairperson of Computer Programming Technology. A.A.S., Indiana Vocational Technical College (1980). Teaching experience: 15 years. Occupational experience in field: 3 years.
- Deady, Barbara**, Master Instructor in Practical Nursing. R.N., Union Hospital School of Nursing (1962); B.S., Indiana State University (1962). Teaching experience: 16 years. Occupational experience in field: 18 years.
- DeBourbon, Michael W.**, Senior Instructor and Chairperson of Industrial and Architectural Drafting Technology. B.S., Southern Illinois University (1975); M.S., Indiana University (1981). Teaching experience: 7 years. Occupational experience in field: 4 years. Member, American Institute for Design and Drafting.
- Eisele, Thomas**, Senior Instructor in Machine Tool Technology. Journeyman Tool & Die Maker; NOCTI certification in Machine Trades. Teaching experience: 5 years. Occupational experience in field: 13 years.



- Elmore, Florence**, Senior Instructor and Chairperson of Surgical Technology. R.N., Philadelphia General Hospital (1950); B.S., Indiana University-Purdue University at Indianapolis (1981). Teaching experience: 9 years. Occupational experience in field: 12 years.
- Haboush, Rosemary Ann**, Senior Instructor in Practical Nursing. B.A., Butler University (1970). Teaching experience: 15 years. Occupational experience in field: 36 years.
- Hawkins, Margaret A.**, Master Instructor in Practical Nursing. R.N., certified as School Nurse; B.S., Indiana University (1958). Teaching experience: 16 years. Occupational experience in field: 41 years.
- Hilmes, Walter H.**, Senior Instructor and Chairperson of Heating, Air Conditioning and Refrigeration Technology. Board Member, Heating & Cooling Examiners, City of Indianapolis (1979); HVAC Contractors Residential and Commercial License. Teaching experience: 30 years. Occupational experience in field: 35 years. IVTC Excellence in Teaching Award, 1980.
- Howell, Robert D.**, Senior Instructor and Chairperson of Automotive Service Technology. NOCTI certification. Teaching experience: 11 years. Occupational experience: 17 years.
- Hubart-Lowe, Nancy**, Senior Instructor in Developmental Studies. B.S., Indiana University-Purdue University at Indianapolis (1977); M.S., Indiana University-Purdue University at Indianapolis (1982). Teaching experience: 5 years.
- Jewell, Beatrice**, Instructor in Practical Nursing. R.N., A.D.S., Indiana Central University (1961); B.S., Indiana Central University (1974). Teaching experience: 8 years. Occupational experience in field: 22 years.
- Kijovsky, Kathy**, Instructor in Practical Nursing. A.A., Indiana University (1976); B.S., Indiana University (1979); M.S., Indiana University (1982). CMA certification - Administrative and Clinical. Teaching experience: 3 years. Occupational experience in field: 7 years.
- King, Kenneth E.**, Senior Instructor and Chairperson of Electronics and Pollution Treatment Technology. A.B., Indiana University (1962); M.S.E., Indiana University (1973). Teaching experience: 13 years. Occupational experience in field: 4 years. IVTC Excellence in Teaching Award, 1982.
- Kissick, Merrill Davis**, Master Instructor and Chairperson of Business Division. A.B., Butler University (1950); M.S., Indiana University (1956). Cooperative Education License. Teaching experience: 20 years. Occupational experience in field: 3 years.
- Kriesse, M.A.**, Master Instructor in Developmental Studies. B.S., Purdue University (1953); M.S., Purdue University (1958). Teaching experience: 30 years. IVTC Excellence in Teaching Award, 1980.
- Kuchler, Stephen**, Senior Instructor in Electronics Technology. A.A.S., Purdue University (1968); B.S., Purdue University (1974). Teaching experience: 8 years. Occupational experience in field: 8 years.
- Ley, Jane D.**, Senior Instructor and Chairperson of Medical Laboratory Technology. B.S., Indiana University (1974); M.S., Indiana University-Purdue University at Indianapolis (1978). Clinical Laboratory Scientist certification; Medical technologist (ASCP). Teaching experience: 7 years. Occupational experience in field: 3 years.
- Looper, Elena**, Senior Instructor and Chairperson of Accounting Technology. B.S., Indiana University (1970); M.B.A., Indiana University (1980). Teaching experience: 16 years. IVTC Excellence in Teaching Award, 1981.
- McFarland, James A.**, Senior Instructor in Industrial Drafting. B.S., Indiana State University (1968). Teaching experience: 8 years. Occupational experience in field: 4 years.
- Mackell, Edward**, Master Instructor and Chairperson of Machine Tool Technology. A.A.S., Indiana Vocational Technical College (1974); Certified Manufacturing Engineer; Journeyman Tool & Die Maker. Teaching experience: 12 years. Occupational experience in field: 16 years.
- Magnant, Peter T.**, Master Instructor and Chairperson of Health Division. R.N., A.B., St. Mary's College (1967); A.A., Indiana University (1974); B.S., Indiana University (1976); M.S., Indiana University (1979). Teaching experience: 13 years.
- Mannan, Susan**, LRC Coordinator. Senior Instructor and Chairperson of Library Aide Program. B.A., Heidelberg College (1965); M.A., Indiana University (1967). Teaching experience: 10 years. Occupational experience in field: 9 years.
- Miller, David**, Senior Instructor in Electronics Technology. B.S., Purdue University (1965); M.S., Indiana State University (1967). Teaching experience: 16 years. Occupational experience in field: 3 years.
- Miller, Randee**, Instructor in Practical Nursing. B.S.N., Indiana University (1975); American Heart Association CPR Instructor; MultiMedia Red Cross Instructor. Teaching experience: 5 years. Occupational experience in field: 9 years.
- Morgan, Phil**, Instructor in Automotive Service Technology. Mankato Area Vocational Technical School (1979); Certified by National Institute for Automotive Service Excellence. Teaching experience: 3 years. Occupational experience in field: 6 years.
- Niccum, Kathi**, Chairperson of Human Services Program. B.A., Indiana State University (1972); M.S., Indiana State University (1974). Teaching experience: 3 years. Occupational experience in field: 10 years.
- Ohalla, Jim**, Senior Instructor and Chairperson in Respiratory Therapy. B.S., Georgia State (1976). Teaching experience: 5 years. Occupational experience in field: 13 years.
- Purdy, Dick**, Senior Instructor in Industrial Maintenance Technology. B.S., Ball State University (1963). Certified in Vocational Carpentry and Building Trades. Teaching experience: 18 years. Occupational experience in field: 30 years.
- Rice, Donna**, Senior Instructor in Secretarial Sciences. B.A., University of Evansville (1969); M.S., Indiana University



- (1972). Teaching experience: 13 years. Occupational experience in field: 2 years.
- Scott, Linda L.**, Senior Instructor in Secretarial Sciences. A.A.S., Ball State University (1958); B.S., Ball State University (1960); M.A., Ball State University (1969). Teaching experience: 10 years. Occupational experience in field: 2 years.
- Seebach, A. R.**, Senior Instructor in Heating, Air Conditioning and Refrigeration Technology. A.A.S., Boston Tech (1946). Teaching experience: 30 years. Occupational experience in field: 35 years. Recipient, Refrigeration Service Engineers Society 30-year award.
- Timmons, Deanna**, Master Instructor and Chairperson of Secretarial Sciences. B.S., Indiana Central University (1963); M.S., Butler University (1971). Teaching experience: 19 years. Occupational experience in field: 2 years.
- Tunison, Norman**, Senior Instructor and Chairperson of Auto Body Technology. Certified by National Institute for Automotive Service Excellence and Inter-Industry Conference on Automobile Collision Repair. Teaching experience: 9 years. Occupational experience in field: 30 years.
- Wallace, Jane A.**, Senior Instructor in Practical Nursing. B.S.N., Ball State University (1953). Teaching experience: 7 years. Occupational experience in field: 13 years.
- Wesselman, Mary Louise**, Master Instructor in Practical Nursing. R.N., Indiana University (1943); A.B., Indiana University (1943). Teaching experience: 26 years. Occupational experience in field: 26 years.
- Wicoff, Dale C.**, Master Instructor and Chairperson of Agricultural and Industrial Equipment Technology. B.S., Purdue University (1939); M.S., Purdue University (1949). Teaching experience: 23 years. Occupational experience in field: 43 years.
- Williams, Ruby**, Senior Instructor in Developmental Studies. B.S., Ball State University (1940). Teaching experience: 22 years.
- Witchie, Elizabeth**, Instructor in Practical Nursing. B.S.N., University of Michigan (1967). Certified in CPR and Standard First Aid (Red Cross). Teaching experience: 6 years. Occupational experience in field: 16 years.
- Zeller, Nancy**, Director of Instruction. B.S., Indiana University (1968); M.A., Indiana University (1976). Teaching experience: 10 years.













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